DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

Certified Mail No.

Agency Interest No. 38867
Activity No.: PER20060003

Mr. John Brewster
President
Louisiana Generating, LLC
112 Telly St.
New Roads, LA 70760

RE: Prevention of Significant Deterioration (PSD) Permit, PSD-LA-677(M-1),
Louisiana Generating LLC - Big Cajun II Power Plant
Louisiana Generating, LLC, New Roads, Pointe Coupee Parish, Louisiana

Enclosed is your permit, PSD-LA-677(M-1). Construction of the proposed project is not allowed until such time as the corresponding operating permit is issued.

Should you have any questions concerning the permit, contact Mr. Chris Smith at 225-219-3112.

Chuck Carr Brown, Ph.D.
Assistant Secretary

_____
Date

CCB:CWS
c: EPA Region VI

ENVIRONMENTAL **SERVICES**
: PO BOX 4313, BATON ROUGE, LA 70821-4313
P:225-219-3181 F:225-219-3309
WWW.DEQ.LOUISIANA.GOV

PSD-LA-677(M-1)
Agency Interest No.: 38867

AUTHORIZATION TO MODIFY AN EXISTING MAJOR STATIONARY SOURCE PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE, LAC 33:III.509

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Louisiana Generating, LLC
112 Telly St
New Roads, LA 70760

is authorized to construct and operate the pulverized coal boiler, EQT021, 15-01 – Boiler No. 4(2B4), using both low-sulfur, Powder River Basin sub-bituminous coal and high sulfur bituminous coal as fuel, and install the material handling sources, including fuel delivery, fuel conveyance, ash handling, limestone handling, and gypsum handling facilities at the Big Cajun II Power Plant located at

9951 Cajun 2 Rd (Hwy 981)
New Roads, LA 70760

subject to the emissions limitations, monitoring requirements and other conditions set forth hereinafter.

This permit and authorization to construct shall expire at midnight on _____, 2009, unless physical on site construction has begun by such date, or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by such date.

Signed this _____ day of _____, 2007.

Chuck Carr Brown, Ph.D.
Assistant Secretary
Office of Environmental Services

BRIEFING SHEET

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana
PSD-LA-677(M-1)

PURPOSE

Louisiana Generating, LLC (LaGen), a subsidiary of NRG Energy, Inc., owns and operates the Big Cajun II Power Plant near New Roads, Louisiana, in Pointe Coupee Parish. The initial start-up of the power station was between 1981 and 1983. Currently, Big Cajun II operates three 575 megawatt (MW) pulverized coal (PC) boilers. Each boiler is fired by low-sulfur, Powder River Basin sub-bituminous coal. LaGen received Permit No. 2260-00012-V0 and PSD-LA-677 on August 22, 2005, for the construction of a proposed nominal 705 MW PC boiler, cooling tower, and ancillary equipment. This new boiler will be owned by Big Cajun II Unit 4, LLC, also a subsidiary of NRG Energy, Inc., and operated by LaGen. Since the issuance of the permits, Big Cajun II Unit 4, LLC has amended the plan because of facility reliability and economic considerations of future fuel availability for the Big Cajun II Unit 4 Project to include high-sulfur bituminous coal as a second fuel supply. The PC unit will be supported by other new emission sources for material handling and the transfer of fuel and limestone.

RECOMMENDATION

Approval of the proposed construction and issuance of a permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division.

PROJECT DESCRIPTION

The Big Cajun II Unit 4 Project consists of installing and operating a PC boiler and associated material handling sources. Under the provisions of 2260-00012-V0 and PSD-LA-677, issued on August 22, 2005, the Unit 4 PC boiler, EQT021, 15-01 – Boiler No. 4(2B4), had been designed to operate with low sulfur subbituminous coal from the Powder River Basin (PRB). In response to both facility reliability and economic considerations of future fuel availability, Big Cajun II Unit 4, LLC, has amended the plan for the Big Cajun II Unit 4 Project to include a second fuel supply: high-sulfur bituminous coal. The Big Cajun II Unit 4 Project design, including the air pollution control technologies, is being revised to utilize both fuels separately and blended. The vast majority of air pollution control equipment remains as specified in PSD-LA-677. However, because of the inherent differences in the two coals, modifications to BACT and the Part 70 permit are required. The Unit 4 PC boiler will be supported by other new emission sources for material handling and transfer of fuel and limestone including barge unloading operations, conveyors, storage piles, and mobile heavy equipment operation over

paved and unpaved roads.

This permit modification of the Big Cajun II Unit 4 project includes the use of two coals that have both common and uncommon pollution parameters. The PRB or low-sulfur subbituminous coals have a modest heat content but low sulfur and ash contents. The high-sulfur coal, although similar in some respects to the low-sulfur coal, has a significantly higher heat content, which partially compensates for higher sulfur and ash contents.

Comparison of Emission Potential Low-Sulfur vs. High-Sulfur Coal

Emission Precursor Coal Element	Low-Sulfur Coal (PRB)		High-Sulfur Coal (Illinois)	
	Percent	Lb Element/ MM BTU	Percent	Lb Element/ MM BTU
Ash	8.50	10.63	10.2	9.27
Sulfur	0.50	0.625	3.50	3.18
Heat Content	8,000 BTU/lb (As Received)	-	11,004 BTU/lb (As Received)	-

The inclusion of high sulfur coals in the fuel mix for Big Cajun II Unit 4 has a significant effect on the emissions for which BACT must be demonstrated. The high-sulfur coal will be the critical fuel for BACT selection and design of the PM/PM_{10}, SO_2, and Sulfuric acid mist (H_2SO_4 mist) control systems. For these pollutants, a revised BACT demonstration is needed for these emissions.

Other pollutant emissions, including NO_X, CO, Beryllium, and Mercury, should not change significantly as a result of the coal characteristics. For these pollutants, with the exception of mercury, the low-sulfur coal remains the critical fuel for BACT selection and design. For VOC, updated design information has indicated that the permitted BACT technology, Combustion Control, is capable of maintaining VOC emissions less than 0.0034 lb/MMBtu rather than the originally permitted 0.015 lb/MMBtu.

Lead and fluorine concentrations in coal can vary significantly, even within the same supply region. Big Cajun II Unit 4, LLC reviewed fluorine concentration data from coals in Wyoming (the primary supply region for PRB coal) and the Illinois Basin (primary supply region for high-sulfur bituminous coal) that are provided by the United States Geological Service (USGS). These data indicated a range of fluorine concentrations from 14 to 4,000 ppmw for Wyoming coals and from 13 to 700 ppmw for Illinois Basin coals. Although this reflects wide uncertainty, it is possible that the high-sulfur bituminous coal will be design critical for fluorine.

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Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana
PSD-LA-677(M-1)

Estimated emission increases due to the project in tons per year are as follows:

Pollutant	Emission Rate Increase	PSD de Minimus	Review Required
PM/PM_{10}	487.6	25/15	Yes
SO_2	2,876	40	Yes
NO_X	2,013	40	Yes
CO	3,883	100	Yes
VOC	97.7	40	Yes
H_2SO_4 Mist	215.7	7	Yes
Lead	0.54	0.6	No
Fluoride	16.03	3	Yes

TYPE OF REVIEW

Particulate Matter (PM/PM_{10}), Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_X), Carbon Monoxide (CO), Volatile Organic Compound (VOC), Sulfuric Acid (H_2SO_4) Mist, and Fluoride emission rates are above the PSD significance levels. Therefore, the requested permit was reviewed in accordance with PSD regulations for PM_{10}, SO_2, NO_X, CO, VOC, H_2SO_4 Mist, and Fluoride emissions. The selection of control technology based on the Best Available Control Technology (BACT) analysis included consideration of control of toxic materials.

BEST AVAILABLE CONTROL TECHNOLOGY

PM_{10}, SO_2, NO_X, CO, VOC, H_2SO_4 Mist, and Fluoride emissions are above PSD de minimis levels and must undergo PSD analysis. Controls for PM_{10}, SO_2, NO_X, CO, VOC, H_2SO_4 Mist, and Fluoride emissions were analyzed using a "top down" approach.

01-01 – Coal Railcar Unloading Building (EQT058)

PM/PM_{10}: Use of a dry fogging or equivalent dust suppression system is BACT for the coal railcar operations. The system is applied to both the railcar and to the receiving hoppers.

05-01 – Emergency Unloading (EQT011)

PM/PM_{10}: BACT is best management practices and periodic pile watering.

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Louisiana Generating LLC - Big Cajun II Power Plant
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15-01 – Boiler No. 4(2B4) (EQT021)

PM/PM_{10}: For Boiler No. 4, the greatest degree of particulate matter control is achieved through the use of a baghouse upstream of the Wet FGD system. A baghouse capable of controlling PM/PM_{10} emissions to 0.015 lb/MM BTU (filterable) is BACT from the boiler. Compliance with the PM/PM_{10} emission limit on Boiler No. 4 will be determined through performance testing using 40 CFR 60.50Da(b), Methods 5, 3B, and 19.

SO_2: A Wet Flue Gas De-Sulfurization (FGD) system is BACT for the Big Cajun II Unit 4 project to meet the high degree of SO_2 removal required for both types of fuel proposed for this project. Big The BACT emission limit for SO_2 is 0.10 lb/MMBtu on a 30-day rolling average basis. This limit is consistent with the SO_2 emission limits in recently issued permits for low-sulfur subbituminous coal-fired units as well as high-sulfur bituminous coal-fired units.

NO_X: Low-NO_X Burners (LNB) and Selective Catalytic Reduction (SCR) are the appropriate BACT technologies for control of NO_X emissions from the Unit 4 boiler to achieve an emission limit of 0.07 lb/MMBtu. Compliance with a 30-day rolling average will be determined with initial performance testing and a continuous emission monitoring system (CEMS). Good work practices will be employed during startup, shutdown, and malfunction periods to minimize NO_X emissions.

CO: The Big Cajun II Unit 4 system will use appropriate combustion control techniques to limit CO emissions to the determined BACT limit of 0.135 lb/MMBtu. No other control technology is available that would consistently result in lower emissions. Compliance with a 30-day rolling average will be determined with initial performance testing and a continuous emission monitoring system (CEMS). Good work practices will be employed during startup, shutdown, and malfunction periods to minimize CO emissions. The addition of high-sulfur bituminous coal will not adversely affect the CO emission limit at Big Cajun II Unit 4, LLC.

VOC: The Big Cajun II Unit 4 system will use appropriate combustion control techniques to limit VOC. Updated design information indicates that the permitted VOC BACT technology for the boiler is capable of maintaining VOC emissions less than 0.0034 lb/MMBtu. Compliance with a 30-day rolling average will be determined with initial performance testing. Good work practices will be employed during startup, shutdown, and malfunction periods to minimize VOC emissions.

H_2SO_4 Mist: Big Cajun II Unit 4, LLC will use sorbent injection upstream of the baghouse and the Wet FGD system for H_2SO_4 mist control. The BACT emission limit for H_2SO_4 mist is 0.0075 lb/MMBtu, based on estimates of potential uncontrolled sulfuric acid emissions while firing high-sulfur bituminous coal. Compliance with the H_2SO_4 mist BACT limit will be determined based on an initial stack test.

Fluoride: Big Cajun II Unit 4, LLC has selected the Wet FGD system as the appropriate control technology for control of hydrogen fluoride emissions from the Unit 4 boiler. An emission limit for hydrogen fluoride of 0.00056 lb/MMBtu is the BACT emission limit.

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Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

PM/PM_{10}: BACT is the use of low ash fuels and good combustion practices during startup/shutdown emissions. The use of low ash fuels will minimize particulate emissions during startup/shutdown.

SO_2: BACT is the use of low sulfur fuel oil during initial startup. The fuel oil to be used during startup will have a maximum sulfur content of 0.7 percent. The Wet Flue Gas Desulferization (FGD) system will engage once solid fuel is introduced to the boiler.

NO_X: BACT is the combustion controls in place on the unit and best operation procedures while the boiler is initially firing fuel oil during startup. After coal and oil are co-fired during startup, and the appropriate operating parameters achieved, the Selective Catalytic Reduction (SCR) unit is activated and NO_X emissions are further reduced.

CO: Good combustion practices are the appropriate BACT technologies for control of CO emissions from the Unit 4 boiler during startup/shutdown operations.

VOC: Appropriate combustion control techniques have been selected by Big Cajun II Unit 4, LLC, as BACT for VOC during startup/shutdown operations.

17-01 – Unit 4 Ash Silo (EQT023)

PM/PM_{10}: The silos are vented to a filter system which reduces emissions by 99 percent. For ash that is to be sold to off-site customers, the material will be loaded into sealed trucks or covered trucks (wetted) and all emissions routed back to the filtration system. For ash that is to be stored in the on-site landfill, the material is first conditioned to approximately 12 percent moisture, then transferred into trucks for shipment to the landfill. This system represents the highest level of controls for such an operation, and as such, was chosen as BACT.

PC1 – Barge Unloading (EQT034)

PM/PM_{10}: BACT is a baghouse at 98.5 % efficiency to control emissions from unloading operations. Installation of the baghouse is conditional if the Unit 4 Project becomes operational.

T1 – Transfer Tower T1 (EQT036)

PM/PM_{10}: BACT is to partially enclose the transfer operations and use spoon chutes at 98.5 % efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

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Louisiana Generating LLC - Big Cajun II Power Plant
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T1A – Transfer Tower T1A (EQT037)

PM/PM_{10}: BACT is to partially enclose the bucket elevator and use spoon chutes at 98.5 % efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

T2 – Transfer Tower T2 (EQT038)

PM/PM_{10}: BACT is to partially enclose the transfer operations and use spoon chutes at 98.5 % efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

T3 – Transfer Tower T3 (EQT039)

PM/PM_{10}: BACT is to partially enclose the transfer operations and use spoon chutes at 98.5 % efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

01-06 – Stamler Reclaim System (EQT062)

PM/PM_{10}: A telescoping chute will minimize emissions to the greatest extent possible from this source. This represents the highest degree of emissions reduction possible for this point and is BACT for this source.

02-06 – Luffing/Slewing Stacker Feed (EQT063) & 04-06 – Portal Reclaimer (EQT065)

PM/PM_{10}: BACT is to water the materials used at the outdoor storage piles to control fugitive emissions.

05-06 – Limestone Rail Car Unloading (EQT066)

PM/PM_{10}: A dry fogging system or equivalent dust suppression, when applied to the receiving hoppers, effectively blankets the materials and greatly reduces the emissions. This system is highly effective and provides for both air quality protection and worker safety, it has been chosen as BACT for these operations.

06-06 – Emergency Limestone Truck Unloading (EQT067)

PM/PM_{10}: Best management practices are BACT for this source. Emergency truck unloading will only be used in emergencies when the railcar systems are inoperable.

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07-06 – Emergency Limestone Reclaim (EQT068)

PM/PM_{10}: BACT is a partial enclosure and a dry fogging or equivalent dust suppression system. Emergency reclaim operations will only occur when the railcar systems are inoperable.

08-06 – Limestone Transfer Tower (EQT069)

PM/PM_{10}: BACT is a total enclosure and a dry fogging or equivalent dust suppression system. Also, the dry fogging system will require less maintenance and resources on such a small transfer point and limited emissions.

09-06 – Limestone Stackout (EQT070)

PM/PM_{10}: BACT is to equip the point with a telescoping chute to minimize fugitive emissions. Also, water applied to the material in the Limestone Transfer Tower provides a carryover control to fugitive emissions.

11-06 – Limestone Day Silos (EQT072)

PM/PM_{10}: BACT is to use a baghouse to control fugitive emissions from the Limestone Day Silos during transfer operations.

12-06 – Gypsum Dewatering Building (EQT073), 13-06 – Gypsum Transfer Tower (EQT074), 14-06 – Gypsum Radial Stacker Feed (EQT075), 15-06 – Gypsum Transfer to Storage Piles (EQT076), 16-06 – Gypsum Truck Loading (EQT077)

PM/PM_{10}: BACT is to use best management practices to control emissions from all gypsum operations. Because gypsum contains a high moisture content, it has very low fugitive emissions.

17-06 – Activated Carbon Silo Bin Vent (EQT078)

PM/PM_{10}: A dust collector (baghouse or filter vent) is BACT for fugitive emission control while the powdered activated carbon is unloaded pneumatically into the silo.

18-06 – Sorbent Silo Bin Vent (EQT079)

PM/PM_{10}: A dust collector (baghouse or filter vent) is BACT for fugitive emission control while the sorbent is unloaded pneumatically into the silo.

FUG 2 – Coal Piles (FUG002)

PM/PM_{10}: BACT for the coal piles is the application of a surfactant or water as needed to limit fugitive emissions. Also, the design of the stacker reduces the free-fall of the material by lowering

the conveyor boom close to the surface of the pile to reduce wind erosion.

FUG 5 – Road Emissions (FUG005)

PM/PM_{10}: BACT is to pave and clean all roads on-site to control fugitive emissions. BACT is also the application of water or a chemical surfactant to the roads surrounding the ash ponds to control fugitive particulate matter emissions.

FUG 6 – New Coal Conveyors (FUG010)

PM/PM_{10}: All new outdoor conveyors at the Big Cajun II facility will be equipped with covers to reduce wind erosion, thereby reducing emissions from the conveyors to the greatest extent possible. In addition, any dry fogging or equivalent dust suppression applied at the conveyor transfer carries over to control emissions while the material is on the conveyor.

FUG 7 – Limestone Conveyors (FUG011)

PM/PM_{10}: All new outdoor conveyors at the Big Cajun II facility will be equipped with covers to reduce wind erosion, thereby reducing emissions from the conveyors to the greatest extent possible. In addition, any dry fogging or equivalent dust suppression applied at the conveyor transfer carries over to control emissions while the material is on the conveyor.

FUG 8 – Limestone Pile Fugitive Emissions (FUG012)

PM/PM_{10}: BACT is the application of a water suppression system to the pile to limit fugitive emissions. Water can be applied to the storage pile in order to cause smaller particles which could be picked up by ambient winds to agglomerate onto larger particles, and not be as easily picked up by wind.

FUG 10 – Gypsum Pile & Loading Fugitive Emissions (FUG010) &
FUG 11 – Gypsum Conveyors (FUG009)

PM/PM_{10}: BACT is the use of best management practices to control emissions from all gypsum operations. Because gypsum contains a high moisture content, it has very low fugitive emissions. Big Cajun II Unit 4, LLC will cover the gypsum conveyors as BACT.

AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration (PSD) regulations requires an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed facility.

Industrial Source Complex, Short-Term, Version 3 (ISCST3) modeling indicates maximum ground level concentrations of NO_x and CO are below their preconstruction monitoring exemption levels and ambient significance levels. No preconstruction monitoring or increment analysis or refined

modeling is required for NO_x and CO.

ISCST3 modeling of PM_{10} emissions associated with the modification show maximum predicted 24-hour and Annual PM_{10} impacts above the significance level; therefore, refined modeling is required. Because the 24-hour maximum impact for PM_{10} is above the deminimis level, preconstruction monitoring may be required. However, the ambient air monitoring station in Port Allen, Louisiana, provides sufficient data and alleviates the need to conduct preconstruction monitoring.

Screen dispersion modeling of SO_2 emissions associated with the modification show maximum predicted 3-hour and 24-hour impacts above the significance levels; therefore, further modeling is required. Because the 24-hour maximum impact for SO_2 is above the deminimis level, preconstruction monitoring may be required. However, the ambient air monitoring station in Port Allen, Louisiana, provides sufficient data and alleviates the need to conduct preconstruction monitoring.

Dispersion modeling indicates the impacts of PM_{10} and SO_2 are below above the National Ambient Air Quality Standards (NAAQS) and within the allowable increment consumption limits of these pollutants.

VOC increases from the proposed modification are less than 100 tpy; therefore, preconstruction monitoring and an ambient air quality analysis are not required.

Big Cajun II Unit 4, LLC conducted a modeling analysis of Toxic Air Pollutants (TAPs) with both chronic effects (e.g., carcinogenic, such as benzene) and acute effects (such as ammonia). The modeled results were compared to 7.5 percent of the standard in LAC 33:III.Chapter 51.Table 2 at all off property receptors. For all TAPs, it was determined that none of the off-site impacts exceeded 7.5 percent of the standard, and no further modeling was required.

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the proposed facility, nor will any Class I area be affected. During the construction phase, approximately 1,500 people will be employed at various times of the Big Cajun II Unit 4 Project. Approximately 40 new permanent jobs will be created when operations at the facility commence.

BRIEFING SHEET

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana
PSD-LA-677(M-1)

PROCESSING TIME

Application Dated:	April 28, 2006
Application Received:	May 1, 2006
Additional Information Dated:	June 28, July 13, July 21, August 28, September 12, September 22, September 28, October 2, October 6, October 23, 2006, November 8, 2006, and November 29, 2006
Effective Completeness:	October 11, 2006

PUBLIC NOTICE

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, Louisiana, on Month XX, 2006; and in the <LOCAL NEWSPAPER>, <NEAREST CITY>, Louisiana, on Month XX, 2006. The proposed permit was also submitted to US EPA Region VI on <date>, 2006. All comments will be considered prior to the final permit decision.

PRELIMINARY DETERMINATION SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana
PSD-LA-677(M-1)
October 11, 2006

I. APPLICANT

Louisiana Generating LLC
112 Telly St.
New Roads, LA 70760

II. LOCATION

Louisiana Generating LLC - Big Cajun II Power Plant is located at 9951 Cajun 2 Road, New Roads, Louisiana. Approximate UTM coordinates are 656.395 kilometers East and 3400.246 kilometers North, Zone 15.

III. PROJECT DESCRIPTION

The Big Cajun II Unit 4 Project consists of installing and operating a PC boiler and associated material handling sources. Under the provisions of 2260-00012-V0 and PSD-LA-677, issued on August 22, 2005, the Unit 4 PC boiler, EQT021, 15-01 – Boiler No. 4(2B4), had been designed to operate with low sulfur subbituminous coal from the Powder River Basin (PRB). In response to both facility reliability and economic considerations of future fuel availability, Big Cajun II Unit 4, LLC has amended the plan for the Big Cajun II Unit 4 Project to include a second fuel supply: high-sulfur bituminous coal. The Big Cajun II Unit 4 Project design, including the air pollution control technologies, is being revised to utilize both fuels separately and blended. The vast majority of air pollution control equipment remains as specified in PSD-LA-677. However, because of the inherent differences in the two coals, modifications to BACT and the Part 70 permit are required. The Unit 4 PC boiler will be supported by other new emission sources for material handling and transfer of fuel and limestone including barge unloading operations, conveyors, storage piles, and mobile heavy equipment operation over paved and unpaved roads.

This permit modification of the Big Cajun II Unit 4 project includes the use of two coals that have both common and uncommon pollution parameters. The PRB or low-sulfur subbituminous coals have a modest heat content but low sulfur and ash contents. The high-sulfur coal, although similar in some respects to the low-sulfur coal, has a significantly higher heat content, which partially compensates for higher sulfur and ash contents.

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The inclusion of high sulfur coals in the fuel mix for Big Cajun II Unit 4 has a significant effect on the emissions for which BACT must be demonstrated. The high-sulfur coal will be the critical fuel for BACT selection and design of the PM/PM_{10}, SO_2, and Sulfuric acid mist (H_2SO_4 mist), control systems. For these pollutants, a revised BACT demonstration is needed for these emissions.

Other pollutant emissions, including NO_X, CO, Beryllium, and Mercury, should not change significantly as a result of the coal characteristics. For these pollutants, with the exception of mercury, the low-sulfur coal remains the critical fuel for BACT selection and design. For VOC, updated design information has indicated that the permitted BACT technology, Combustion Control, is capable of maintaining VOC emissions less than 0.0034 lb/MMBtu rather than the originally permitted 0.015 lb/MMBtu.

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Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana
PSD-LA-677(M-1)
October 11, 2006

Startup/Shutdown emissions for the Big Cajun II Unit 4 Power Plant have been included into this permit modification for the boilers. In order to minimize air emissions during start-up operations, the permittee shall fire distillate fuel oil during start-up to raise the temperature within the combustion chamber of the PC steam generator to a point where the emissions from the combustion of the solid fuel source can be controlled shortly after its introduction by the inherent features of the PC technology and the add-on controls for the boiler. The maximum lb/hr rate provided in the permit for the three existing boilers, EQT027, 2B1 - Boiler No. 1, EQT028, 2B2 – Boiler No. 2, and EQT029, 2B3 – Boiler No. 3, included startup/shutdown operations.

The maximum lb/hr rate provided in the permit for the new boiler, EQT021, 15-01 – Boiler No. 4(2B4), did not include the startup/shutdown emissions; therefore, these emissions are displayed as scenarios in the Part 70 permit modification and PSD permit. Under EQT021, 15-01 – Boiler No. 4(2B4), only the annual emissions are displayed in the sections "Emission Rates for Criteria Pollutants" and "Emission Rates for TAP/HAP & Other Pollutants." The emissions listed under EQT021 represent the maximum potential-to-emit (PTE) in tons per year at EQT021, 15-01 - Boiler No. 4(2B4), including emissions from both normal operations and also start-up/shut-down operations over 8,760 hours per year. The permittee can select which scenario, and its associated Average (lb/hr) and Maximum (lb/hr) rates, to operate under without exceeding the maximum PTE.

Scenario 1 provides the Maximum (lb/hr) emissions for startup/shutdown operations occurring under a 'cold' startup. A cold startup is defined as when the turbine metal temperature in the first stage has dropped to less than 300 degrees F. A cold startup requires an extended period to warm and evenly heat the turbine when starting up and build pressure slowly to avoid damaging the machine (referred to as Prewarm). Scenario 2 provides the Maximum (lb/hr) emissions for startup/shutdown operations occurring under a 'hot' startup. A hot start up is defined as the turbine metal temperature in the first stage is greater than 300 degrees F. Hot startup requires no Prewarm. Big Cajun II Unit 4 must monitor and maintain the water quality in the boiler, which must be within certain limits as pressure is increased. This is to prevent carryover of potential contaminants in the steam to the turbine. Scenario 3 provides the Average (lb/hr), Maximum (lb/hr), and Annual (TPY) emissions for EQT021, 15-01 – Boiler No. 4(2B4), occurring under normal operations of the boiler over 8,760 hours per year. Start-up/shut-down emissions are not included in Scenario 3.

Existing sources at the Big Cajun II Unit 4 Power plant which remain unchanged by the modification include Boilers No. 1, No. 2, and No. 3; Unit 1 & Unit 2 Bunker Room; Unit 3 East and West Bunker Room; and Fly Ash Handling Emissions. Operations at Cooling Towers No. 1 and No. 2 also remain unchanged. Other existing sources at the power plant have been modified, redesignated, or removed from the proposal.

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for modified major sources requires review under PSD regulations, LAC 33:III.509. PSD permit reviews of proposed new or modified major stationary sources require the following analyses:

A. A determination of the Best Available Control Technology (BACT);

B. Analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;

C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);

D. An analysis of the PSD increment consumption;

E. An analysis of the source related growth impacts;

F. An analysis of source related impacts on soils, vegetation, and visibility;

G. A Class I Area impact analysis; and

H. An analysis of the impact of toxic compound emissions.

A. BEST AVAILABLE CONTROL TECHNOLOGY

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major source in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes.

Louisiana Generating, LLC proposes to construct and operate the pulverized coal boiler, EQT021, 15-01 – Boiler No. 4(2B4) and the appropriate material handling sources at the Big Cajun II Power Plant. PM_{10}, SO_2, NO_x, CO, VOC, H_2SO_4 Mist, and Fluoride emissions from this project will be above PSD de minimis levels. A BACT analysis is required for these PSD regulated pollutants. Where PM_{10} is addressed in the BACT analysis, it is assumed that particulate matter (PM) is also being considered.

BACT analyses for PM/PM_{10}

01-01 – Coal Railcar Unloading Building (EQT058)

Dry Fogging/Dust Suppression System used individually or with a Baghouse

The railcar unloading system is a new system that will be installed due to the proposed construction of the new PC boiler. Solid fuels will be delivered by railcar, which provides a comparatively lower cost and more reliable source of transportation than the use of truck and/or barge shipments. The fuel is unloaded from the railcars by rotating the railcar, thereby dumping the coal into underground hoppers. The coal is then transferred from the hoppers to Conveyor BC20. The original configuration of this point was to have two baghouses controlling the emissions from this operation (Emission Points 01-01A and 01-01B in Permit No. 2260-00012-V0). However, further evaluation of this emission operation revealed that a baghouse alone is not the best method of controlling the emissions from the source. Industry experience has determined that a dry fogging or equivalent dust suppression system, when applied to both the railcar itself as well as the receiving hoppers, effectively blanketed the materials and greatly reduced the emissions such that employee's health and safety was not jeopardized. In fact, it is estimated that the fogging system is able to reduce emissions by at least 95 percent over uncontrolled levels. As this system is highly effective and provides for both air quality protection and worker safety, it was been chosen as BACT for these operations.

05-01 – Emergency Unloading (EQT011)

Best Management Practices and Periodic Pile Watering

The coal emergency storage pile is similar in nature to 01-06 – Stamler Reclaim System (EQT062) and is expected to see limited use at this facility. It is used only in emergencies when the stacker or reclaim systems are inoperable. Enclosures and permanent wet suppression systems are not feasible at this source, and BACT is determined to be best management practices and periodic pile watering to control emissions from this operation.

15-01 – Boiler No. 4(2B4) (EQT021)

Particulate matter (PM) composition and emission levels are a complex function of boiler firing configuration, boiler operation, pollution control equipment, and coal properties. Uncontrolled PM emissions from coal-fired boilers include the ash from combustion of the fuel, noncombustible metals present in trace quantities, and unburned carbon resulting from incomplete combustion. In pulverized coal systems, combustion is almost complete. Thus, the emitted PM is primarily composed of inorganic ash residues. Other sources of PM include condensable organics and minerals present in the combustion air.

Coal ash may either settle out in the boiler (bottom ash) or be entrained in the flue gas (fly ash). The distribution of ash between the bottom ash and fly ash fractions directly affects the

PM emission rate and depends on the boiler firing method and furnace type (wet or dry bottom). Boiler load also affects PM emissions, as decreasing load tends to reduce PM emissions. However, the magnitude of the reduction varies considerably depending on boiler type, fuel, and boiler operation.

The principal control techniques for PM are combustion modifications (applicable to small stoker-fired boilers) and post-combustion methods (applicable to most boiler types and sizes). Proper design and operation of the combustion air delivery systems can also minimize PM emissions. Electrostatic precipitators (ESPs) and fabric filters (baghouses) were examined as post-combustion control of PM from coal-fired combustion sources.

Dry Electrostatic Precipitator

Electrostatic precipitation technology is applicable to a variety of coal combustion sources. ESPs remove particulate matter from the flue gas stream by charging fly ash particulates with a very high DC voltage and attracting these particles to charged collection plates. A layer of collected particulate forms on the collecting plates (electrodes) and is removed by rapping the electrodes. The collected particulate drops into hoppers below the precipitator and is periodically removed from the fly ash handling system.

Because of their modular design, ESPs can be applied to a wide range of system sizes and should have no adverse effect on combustion system performance. The operating parameters that influence ESP performance include fly ash mass loading, particle size distribution, fly ash electrical resistivity, and precipitator voltage and current. Other factors that determine ESP collection efficiency are collection plate area, gas flow velocity, and cleaning cycle.

Baghouse

Fabric filters (baghouses) have been widely applied to coal combustion sources and consist of a number of filtering elements (bags) along with a bag cleaning system contained in a main shell structure incorporating dust hoppers. Fabric filters use fabric bags as filters to collect particulate matter. The particulate-laden gas enters a fabric filter compartment and passes through a layer of particulate and filter bags. The collected particulate forms a cake on the bag, which enhances the bag's filtering efficiency. However, excessive caking will increase the pressure drop across the fabric filter and reduce its efficiency.

The particulate removal efficiency of fabric filters is dependent upon a variety of particle and operational characteristics. Particle characteristics that affect the collection efficiency include particle size distribution, particle cohesion characteristics, and particle electrical resistivity. Operational parameters that affect fabric filter collection efficiency include air-to-cloth ratio, operating pressure loss, cleaning sequence, interval between cleanings, cleaning method, and cleaning intensity. In addition, the particle collection efficiency and size distribution can be affected by certain fabric properties (e.g., structure of fabric, fiber composition, and bag properties).

Pollutant	BACT Control Technology	Range (lb / MM Btu)
PM/PM_{10}	Baghouse (Fabric Filter)	0.012 - 0.025
	Electrostatic Precipitator (ESP)	0.018 – 0.023

In PSD-LA-677, issued August 22, 2005, the PM/PM_{10} control system for Boiler No.4 included a dry electrostatic precipitator (ESP) followed by a fabric filter (baghouse). In this configuration, fly ash would not be commingled with FGD byproduct if a semi-dry flue gas desulfurization (FGD) system were selected for the treatment of SO_2. The addition of high-sulfur bituminous coal requires the installation of the Wet FGD control system. The Wet FGD system is installed after the baghouse to remove SO_2 and additional mercury emissions, and fly ash will not be commingled with FGD byproduct. Therefore, the low efficiency dry ESP upstream of the baghouse is not required and is not a part of the air quality control system. This change will not affect the ability of the air quality control system to meet the current PM_{10} emission limit of 0.015 lb/MMBtu.

The Big Cajun II Unit 4 system, using a baghouse upstream of the Wet FGD system, will achieve a PM/PM_{10} filterable emission limit of 0.015 lb/MMBtu. No other control technology option is available that would consistently result in lower emissions. Compliance with the PM/PM_{10} emission limit will be determined with initial performance testing using Methods 5, 3B and 19 as specified in 40 CFR 60.50Da(b).

Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

Low Ash Fuels and Good Combustion Practices

BACT is the use of low ash fuels and good combustion practices during startup/shutdown emissions. The use of low ash fuels will minimize particulate emissions during startup/shutdown. Good combustion practices are also in place to ensure the boiler is operated in the most efficient method possible. The baghouse will become operational after solid fuel is added to the boiler.

17-01 – Unit 4 Ash Silo (EQT023)

Filter System, Sealed Loading Operations, Pre-Wetting

Fly ash from the PC boiler is collected internally and routed pneumatically to two ash silos (Emission Point 17-01). The silos are vented to a filter system which reduced emissions by 99 percent. This is the highest degree of control available and represents BACT for the fly ash silos. For ash that is to be sold to off-site customers, the material will be pneumatically transferred to sealed trucks and all emissions routed back to the filtration system. Again, this represents the highest degree of control possible. For ash that is to be stored in the on-site landfill, the material is first conditioned to approximately 12 percent moisture then transferred into trucks for shipment to the landfill. This system represents the highest level of controls for such an operation, and as such was chosen as BACT. A small amount of

fugitive PM_{10} may be released during connection and disconnection of the loading chutes, but this is an inherent consequence of the overall superior emissions control, and no additional controls can be utilized to prevent this small amount of emissions.

PC1 – Barge Unloading (EQT034)

Baghouse

BACT is a baghouse at 98.5 % efficiency to control emissions from unloading operations. Installation of the baghouse is conditional if the Unit 4 Project becomes operational.

T1 – Transfer Tower T1 (EQT036)

Partial Enclosure and Spoon Chutes

BACT is to partially enclose the transfer operations and use spoon chutes at 98.5% efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

T1A – Transfer Tower T1A (EQT037)

Partial Enclosure and Spoon Chutes

BACT is to partially enclose the bucket elevator and use spoon chutes at 98.5% efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

T2 – Transfer Tower T2 (EQT038)

Partial Enclosure and Spoon Chutes

BACT is to partially enclose the transfer operations and use spoon chutes at 98.5% efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

T3 – Transfer Tower T3 (EQT039)

Partial Enclosure and Spoon Chutes

BACT is to partially enclose the transfer operations and use spoon chutes at 98.5% efficiency to control emissions. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.

01-06 – Stamler Reclaim System (EQT062)

Use of a Telescopic Chute

The emergency reclaim system, 01-06 – Stamler Reclaim System (EQT062), is a system that is not anticipated for any sort of continual use. It is utilized only in emergencies when the stacker or reclaim systems are inoperable. It is not possible to enclose this point, and water sprays are not economically feasible when its utilization is projected to be less than 10 percent annually. As such, the point will be equipped with a telescoping chute to minimize emissions to the greatest extent possible. This is BACT for this source.

02-06 – Luffing/Slewing Stacker Feed (EQT063) & 04-06 – Portal Reclaimer (EQT065)

Water Suppressant at Coal Storage Piles

The only outdoor conveyor transfer points include the coal transfer onto the outdoor storage piles by the new stacker system, 02-06 – Luffing/Slewing Stacker Feed (EQT063), and the new portal reclaim system, 04-06 – Portal Reclaimer (EQT065). For the stacker and reclaim systems, it is not feasible to enclose these processes, and fogging or continuous water suppression systems are not technically feasible due to the mobile nature of the sources. The outdoor storage piles are watered as needed to control fugitive emissions, and this has been determined as BACT for these systems.

05-06 – Limestone Rail Car Unloading (EQT066)

The railcar unloading system, 05-06 – Limestone Rail Car Unloading (EQT066), is a new system that will be installed due to the proposed construction of the new PC boiler. Limestone will be delivered by railcar and the contents unloaded by a bottom dump system, thereby depositing the limestone into underground hoppers. The limestone is then transferred from the hoppers to Conveyor BC34.

Full Enclosure and Baghouse

The first method reviewed for emissions control was a full enclosure and a baghouse. While this configuration would result in the highest degree of control, further evaluation of this emission operation revealed that a baghouse is not the best method of controlling the emissions from the source. Industry experience has determined that the amount of dust generated by the dumping of the limestone into the hoppers, proved hazardous to facility workers that needed to be inside of the building during the railcar unloading.

Dry Fogging/Dust Suppression System Applied to the Receiving Hoppers

It has been shown that a dry fogging or equivalent dust suppression system, when applied to the receiving hoppers, effectively blanketed the materials and greatly reduced the emissions such that employee's health and safety was not jeopardized. In fact, it is estimated that the fogging system is able to reduce emissions by at least 95 percent over uncontrolled levels. This system is highly effective and provides for both air quality protection and worker safety; it was been chosen as BACT for these operations.

06-06 – Emergency Limestone Truck Unloading (EQT067)

Best Management Practices

The emergency truck unloading operation is a system that is not anticipated for any sort of continual use. It is utilized only in emergencies when the railcar systems are inoperable. It is not possible to enclose this point, and water sprays are not economically feasible when its utilization is projected to be less than 10 percent annually. As truck unloading is not an easily controlled source, best management practices represents BACT for this source and will be utilized to minimize emissions.

07-06 – Emergency Limestone Reclaim (EQT068)

Partial Enclosure and a Dry Fogging/Dust Suppression System

The emergency Stamler reclaim operations are not anticipated for any sort of continual use. It is utilized only in emergencies when the railcar systems are inoperable. It is not possible to totally enclose this point, but a partial enclosure is possible, and a dry fogging or equivalent dust suppression system can be installed. As this system is highly effective and provides the highest degree of emissions reduction, it was chosen as BACT for these operations.

08-06 – Limestone Transfer Tower (EQT069)

Total Enclosure and a Dry Fogging/Dust Suppression System

From the limestone unloading operations, the material is transferred on Conveyor BC34 to a transfer tower to be routed to the limestone storage pile on Conveyor BC35. A total enclosure and baghouse were evaluated for this structure and compared to an enclosed dry fogging or equivalent dust suppression system. The comparison indicated that in this case the emissions from the two systems were virtually identical and could both be considered as the highest level of emissions control. An evaluation was then undertaken of the feasibility of such systems. It was determined that the dry fogging or equivalent dust suppression system would require less maintenance and resources than a baghouse on such a small

transfer point with limited emissions. Thus, the enclosure and dry fogging or equivalent dust suppression system provide the best level of control and were selected as BACT for the limestone transfer tower.

09-06 – Limestone Stackout (EQT070)

Use of a Telescoping Chute

The limestone transferred onto the outdoor storage pile by Conveyor BC35 is the only outdoor conveyor transfer point. It is not possible to enclose this point, and the water applied to the material in the Limestone Transfer Tower has a carryover control. As such, the point will be equipped with a telescoping chute to minimize emissions to the greatest extent possible. This represents the highest degree of emissions reduction possible for this point and is BACT for this source.

11-06 – Limestone Day Silos (EQT072)

Baghouse

The limestone is transferred via Conveyor BC36 to the preparation building where it is stored in day silos prior to being crushed and prepared for the Wet FGD system. The only emissions generated are from the transfer into the day silos. All other operations are conducted in a wet environment inside the building, thereby eliminating emissions. Because a baghouse represents the highest level of emissions control, it was selected as BACT for this process, and no further evaluation was required.

12-06 – Gypsum Dewatering Building (EQT073)
13-06 – Gypsum Transfer Tower (EQT074)
14-06 – Gypsum Radial Stacker Feed (EQT075)
15-06 – Gypsum Transfer to Storage Piles (EQT076)
16-06 – Gypsum Truck Loading (EQT077)

Baghouse

Gypsum that is removed from the Wet FGD system has a high moisture content, usually 10 percent or more. This high amount of moisture virtually eliminates the possibility of fugitive emissions from the material. Enclosing the processes and venting the emissions to a baghouse is not a practical option as the amount of water vapor in the air due to the gypsum processing operations could lead to bag blinding in a relatively short amount of time. As such, a baghouse control of the processes was eliminated as a technology option.

Cover Conveyors and Best Management Practices

Additional controls on the transfer points or storage piles are not practical due to the inherent dust control in the high moisture content. BACT is best management practices to control emissions from all gypsum operations.

17-06 – Activated Carbon Silo Bin Vent (EQT078)

Big Cajun II Unit 4, LLC is aware of the potential need for some type of addition to the coal or flue gases to control mercury emissions. One option is to utilize a sorbent and injecting it into the gas stream. One sorbent widely indicated as effective is powdered activated carbon (PAC). If such a sorbent is ultimately determined to be the best way to control mercury from Big Cajun II Unit 4, then a silo would likely be needed. This silo is therefore being permitted such that a modification to the PSD permit and Title V permit would not be required in the future.

Dust Collector

Particulate matter emissions arise from PAC unloading operations into the PAC silo which is done pneumatically and can be easily controlled through the use of a dust collector (baghouse or filter vent), yielding the highest level of emission control. The use of a dust collector was chosen as BACT for controlling PM emissions from the PAC silo loading.

18-06 – Sorbent Silo Bin Vent (EQT079)

Big Cajun II Unit 4, LLC is aware of the potential need to inject alkali into the flue gas upstream of the baghouse to lower the sulfuric acid dew point temperature. One option is to utilize an alkaline sorbent, which may be in powdered form. If such a sorbent is ultimately determined to be the best way to control the dew point temperature entering the baghouse, then a silo would likely be needed. This silo is therefore being permitted such that a modification to the PSD permit and Title V permit would not be required in the future.

Dust Collector

Particulate matter emissions arise from sorbent unloading operations into the silo, which is done pneumatically and can be easily controlled through the use of a dust collector (baghouse or filter vent), yielding the highest level of emission control. The use of a dust collector was chosen as BACT for controlling PM emissions from the sorbent silo loading.

FUG 2 – Coal Piles (FUG002)

For the coal storage piles, control of fugitive emissions is accomplished by limiting the amount of material that can be entrained in the air by natural processes (wind). In order to

achieve this goal, several options are available.

Coal Dome

In reviewing the control options available for the new coal storage piles, the first technology examined was a coal dome. This building deflects all winds and prevents any entrainment of particulate matter. While this technology affords the maximum degree of emissions reduction, there are several problems that exist that eliminate this from further consideration. First, the coal dome must be vented to allow for air circulation. This is not only for worker safety, but also to prevent fires. Western low-sulfur coal is highly flammable when sitting in a pile, and enclosing it greatly increases the risk of fire. Sprinkler systems must be installed in the dome and the pile actively maintained in order to minimize the risk of fire. Also, the sheer size of the dome is cost prohibitive. The active and reserve storage piles will cover an area greater than 20 acres. The immense size of such a building, combined with the complexities of ventilation and fire suppression, eliminated a coal dome from consideration as a control technology for the coal storage piles.

Cover the Coal Piles with Overburden

The next option reviewed is to cover the piles with overburden (soil) to eliminate fugitive emissions. The overburden (soil) prevents the silt in the coal from being entrained in the air. This process in and of itself causes fugitive emissions, as soil must be brought in to cover the entire pile. Once the soil is laid down, vegetation must be introduced in order to prevent the soil itself from generating fugitive emissions. Additionally, an overburden cover is only applicable for the reserve storage pile area. The active pile requires frequent use, and it is not practical to implement such a control strategy. While an overburden system may provide good fugitive control, as a practical matter it was eliminated from control technology consideration due to the large amount of soil that would be required to cover the reserve storage piles, as well as the maintenance that would be needed to tend to the vegetation on top of the pile.

Chemical/Water Surfactant

Applying a chemical surfactant to the pile was the next level of control examined. Water can be applied to the storage piles in order to cause small particles that could be picked up by ambient winds to agglomerate onto larger particles and thereby reduce the amount of material available for entrainment. Chemical surfactants work in the same manner, and use a chemical interaction to bond particles together to prevent re-entrainment. This creates a "crust" on the pile and, as long as the crust remains undisturbed, virtually eliminates fugitive particulate emissions. For the reserve pile, this is a highly cost effective and low maintenance solution. There will be little or no vehicular traffic on the new storage pile for Big Cajun II Unit 4, so once the chemical surfactant is applied and a crust forms, there is little to no possibility of fugitive dust emission from the reserve pile. Vehicular traffic would only be present on the reserve pile in case an emergency condition with the new stacker/reclaim system arose and the system was no longer functioning. As the system will

undergo maintenance when not in use, there are no anticipated outages of the stacker or portal reclaim system, and only in cases when the new equipment malfunctioned would it be necessary to use vehicles on the reserve storage pile. In those cases, water could be applied, as needed, to control any emissions generated by vehicular traffic. Once the stacker or portal reclaim system is repaired, the chemical surfactant is reapplied and once again, the fugitive emissions are eliminated.

For the active storage piles, the required volume and shape of the piles (linear piles) were selected to optimize the large storage requirement and for the flexibility to blend various fuels. Coal domes and overburden protection do not fit the pile shape and volume requirements. Chemical additives are the viable solution for controlling fugitive dust. Polymer-based sprays added to the water provide long lasting residual characteristics that control dust downstream of the application point. For the active coal piles, the residual spray would be applied at EQT008, 02-01 – Transfer Tower T-20, upstream of the piles. The residual bond continues to attract any airborne particles along the conveying process. The polymer spray will continue to suppress the dust along the conveyor and stacker machinery. Also, the design of the stacker reduces the free-fall of the material by lowering the conveyor boom close to the surface of the pile to reduce wind erosion. As such, Big Cajun II Unit 4, LLC will apply a surfactant or water to the piles as needed to limit fugitive emissions. This control method was determined to be BACT for the coal piles for Unit 4.

FUG 5 – Road Emissions (FUG005)

Paving/Water Spray

With the exception of some of the roads around the on-site ash ponds, all roads on-site are paved and cleaned on a regular basis. Paving and cleaning roads represents the highest level of fugitive emission control. The roads surrounding the ash ponds are a different matter. It is not possible to pave the entire portion of the road as the roads lead into the ponds themselves. This road resembles more of a traditional unpaved road, with the only options being to apply water or a chemical surfactant to the road to control fugitive particulate matter emissions.

FUG 6 – New Coal Conveyors (FUG010)

Covers on Conveyors and use of Dry Fogging/Dust Suppression

Wind erosion during the movement of the material by the conveyors is a principle cause of the PM_{10} emissions. This effect can be reduced by covering the conveyors and conditioning the material (water/chemical suppression, etc.) prior to movement. BACT is to cover all new outdoor conveyors at the Big Cajun II facility to reduce wind erosion, thereby reducing emissions from the conveyors to the greatest extent possible. In addition, any dry fogging or dust suppression applied at the conveyor transfer carries over to control emissions while the

material is on the conveyor.

FUG 7 – Limestone Conveyors (FUG011)

Covers on Conveyors and use of Dry Fogging/Dust Suppression

Wind erosion during the movement of the material by the conveyors is a principle cause of the PM_{10} emissions. This effect can be reduced by covering the conveyors and conditioning the material (water/chemical suppression, etc.) prior to movement. BACT is to equip conveyors with covers to reduce wind erosion, thereby reducing emissions from the conveyors to the greatest extent possible. In addition, any dry fogging or equivalent dust suppression applied at the conveyor transfer carries over to control emissions while the material is on the conveyor.

FUG 8 – Limestone Pile Fugitive Emissions (FUG012)

For the limestone storage pile, control of fugitive emissions is accomplished by limiting the amount of material that can be entrained in the air by natural processes (wind). In order to achieve this goal, several options are available.

Limestone Dome

In reviewing the control options available for the new limestone storage pile, the first technology examined was a limestone dome. The building deflects all winds and prevents any entrainment of particulate matter. While this technology affords the maximum degree of emissions reduction, there are several problems that exist that eliminate this from further consideration. First, the dome must be vented to allow for air circulation. Also, the size and location of the dome is cost prohibitive. The storage pile needs to be near the limestone preparation building, or else extensive conveying systems would need to be installed to transfer the limestone to the appropriate locations. For these reasons, a dome was eliminated from consideration as a control technology.

Overburden (Soil) Cover

The next option reviewed is to cover the pile with overburden (soil) to eliminate fugitive emissions. The overburden (soil) places silt in the limestone and prevents it from being entrained in the air. This is not a viable option for the limestone pile due to the short-term nature of the pile. As such, it was eliminated from further consideration.

Chemical Surfactant

Applying a chemical surfactant to the pile was the next level of control examined. Chemical surfactants use a chemical interaction to bond particles together to prevent re-entrainment by wind. This creates a "crust" on the pile and, as long as the crust remains undisturbed,

virtually eliminates fugitive particulate emissions. For the limestone storage pile, a chemical surfactant is not a viable option as the material in the pile is disturbed regularly.

Water Suppression

Water can be applied to the storage pile in order to cause small particles that could be picked up by ambient winds to agglomerate onto larger particles and thereby reduce the amount of material available for entrainment. Wet suppression of some type would provide the greatest level of control for this source. Big Cajun II Unit 4 will apply water to the pile as needed to limit fugitive emissions. This control method was determined to be BACT for the limestone pile for Unit 4.

FUG 10 – Gypsum Pile & Loading Fugitive Emissions (FUG010) &
FUG 11 – Gypsum Conveyors (FUG009)

Baghouse

Gypsum that is removed from the Wet FGD system has a high moisture content, usually 10 percent or more. This high amount of moisture virtually eliminates the possibility of fugitive emissions from the material. Enclosing this process and venting the emissions to a baghouse is not a practical option as the amount of water vapor in the air due to the gypsum processing operations could lead to bag blinding in a relatively short amount of time. As such, a baghouse control of this process was eliminated as a technology option.

Cover Conveyors and Best Management Practices

All gypsum conveyors are covered to reduce the potential for wind erosion, but additional controls on the transfer points or storage piles are not practical due to the inherent dust control in the high moisture content. BACT is best management practices to control emissions from all gypsum operations and to cover all gypsum conveyors.

BACT analyses for SO_2

15-01 – Boiler No. 4(2B4) (EQT021)

Lime Spray Dryer Flue Gas De-Sulfurization (LSD-FGD)

In a LSD-FGD module, flue gas contacts an alkaline slurry to remove SO_2 through chemical reactions that convert it into calcium sulfites and calcium sulfates. However, the quantity of water introduced to the flue gas in a LSD-FGD is limited so that the flue gas does not reach saturation temperature, and the slurry is dried by the flue gas and forms a powder waste product. The LSD-FGD product and fly ash is then collected in the particulate control equipment (usually a fabric filter) located downstream of the FGD system. The bags become coated with this powder, which contains large amounts of un-reacted alkaline material. SO_2

and SO_3 that remain in the flue gas downstream of the module react with this filter cake. The filter cake also promotes the collection of fine particulate matter in the fabric filter. LSD-FGD is a well-established technology that is commercially available from numerous vendors.

An examination of LSD-FGD applications involving low-sulfur coals indicated that an SO_2 removal efficiency of 92 percent based on a maximum coal sulfur of 0.5 percent has been determined to be sustainable. While some information is available that indicates that SO_2 removal efficiencies on LSD-FGD systems can approach 95 percent, it is not clear that such removal efficiency is consistently achievable. In addition, with an emission limit of 0.10 lb/MMBtu, a 92 percent efficiency would allow for a maximum inlet SO_2 concentration to the FGD system of approximately 1.25 lb/MMBtu. As the high-sulfur coal has the potential to have an inlet concentration of SO_2 to the FGD system in excess of 5.8 lb/MMBtu, the LSD-FGD system is incapable of achieving the emission limit and has been eliminated from further consideration.

Wet Limestone Flue Gas Desulfurization (Wet FGD)

In Wet FGDs, the flue gas enters a large vessel (spray tower or absorber), where it is sprayed with limestone-water slurry. The calcium in the slurry reacts with the SO_2 to form calcium sulfite or calcium sulfate. Compressed air (forced oxidation) can be injected into the slurry to oxidize calcium sulfite to calcium sulfate or gypsum. Almost all FGD systems in the United States in recent years use limestone with forced oxidation to produce commercial grade or disposal grade gypsum depending on the local market for gypsum.

A portion of the slurry from the reaction tank is pumped to a set of hydrocyclones to concentrate the slurry to approximately 50 percent solids. Hydrocyclone overflow containing fine gypsum crystals and unreacted limestone is returned to the absorber for reuse as reagent. The hydrocyclone underflow with 50 percent solids is further dewatered in a belt filter to a gypsum product with 10 to 15 percent moisture. By controlling the gypsum quality in the dewatering step, a wallboard-grade gypsum can be produced. Gypsum from the belt filter discharge is conveyed to gypsum storage for sale or disposal.

Wet FGD is an established technology and is common on high-sulfur coal applications. In recent years, Wet FGD suppliers have provided performance removal guarantees in the mid-nineties (expressed as percentage removal) for low-sulfur coal applications and the mid- to upper-nineties for higher sulfur applications.

Pollutant	BACT Control Technology	Range (lb / MM BTU)
SO2	Lime Spray Dryer FGD	0.09 - 0.32
	Wet Limestone FGD	0.09 - 0.25

Wet FGD is BACT for the Big Cajun II Unit 4 project to meet the high degree of SO_2 removal required for both types of fuel proposed for this project. The BACT emission limit for SO_2 is 0.10 lb/MMBtu on a 30-day rolling average basis. This limit is consistent with the

SO_2 emission limits in recently issued permits for low-sulfur subbituminous coal-fired units as well as high-sulfur bituminous coal-fired units.

Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

Low Sulfur Fuel Oils and Wet Flue Gas Desulferization system

BACT is the use of low sulfur fuel oil during initial startup. The fuel oil to be used during startup will have a maximum sulfur content of 0.7 percent. The low sulfur content will minimize SO_2 emissions during the initial fuel oil firing during startup. Once solid fuel is introduced to the boiler, the FGD system will engage and all flue gases are routed through the control device.

BACT analyses for NO_X

15-01 – Boiler No. 4(2B4) (EQT021)

The formation of NO_X is determined by the interaction of chemical and physical processes occurring within the flame zone of the furnace of the proposed boiler. There are two principal forms of NO_X, "thermal" NO_X and "fuel" NO_X. Thermal NO_X formation is the result of oxidation of atmospheric nitrogen contained in the inlet gas in the high-temperature, post-flame region of the combustion zone. The major factors influencing thermal NO_X formation are temperature, concentrations of combustion gases (primarily nitrogen and oxygen) in the inlet air, and residence time within the combustion zone. Fuel NO_X is formed by the oxidation of fuel-bound nitrogen. NO_X formation can be controlled by firing "cleaner" burning fuels, adjusting the combustion process, and/or installing post-combustion controls.

There are three principal methods for controlling NO_X emissions: (1) clean-up of NO_X from the exhaust by the introduction of a reducing agent into the exhaust stream, (2) modification of the combustion process, and (3) design of burners to limit the formation of pollutants in the burning zone.

Potentially applicable NO_X control technologies include:
- low excess air (LEA);
- low NO_X burners (LNB);
- separate overfire air (SOFA);
- flue gas recirculation (FGR);
- selective catalytic reduction (SCR);
- selective non-catalytic reduction (SNCR); and
- combinations of these technologies.

The base case for estimating the NO_X percent reduction is 0.34 lb NO_X/MM Btu (uncontrolled level). This figure is based on recent historical performance on Big Cajun II

Boilers 1, 2, and 3.

Selective catalytic reduction (SCR)

SCR is a post combustion NO_X add-on control device that is placed in the flue gas stream following the boiler. SCR involves the injection of ammonia (NH_3) into the flue gas stream upstream of a catalyst bed. On the catalyst surface, ammonia reacts with NO_X contained within the air to form nitrogen gas (N_2) and water (H_2O) in accordance with the following chemical equations:

$4NH_3 + 4NO + O_2 \Rightarrow 4N_2 + 6H_2O$
$8NH_3 + 6\ NO_2 \Rightarrow 7N_2 + 12H_2O$

The catalyst's active surface is usually a noble metal (platinum), base metal (titanium or vanadium), or a zeolite-based material. Metal-based catalysts are usually applied as a coating over a metal or ceramic substrate. Zeolite catalysts are typically a homogenous material that forms both the active surface and the substrate. The geometric configuration of the catalyst body is designed for maximum surface area and minimum obstruction of the flue gas flow path in order to achieve maximum conversion efficiency and minimum back pressure. In a typical ammonia injection system, ammonia is drawn from a storage tank, vaporized, and injected upstream of the catalyst bed. Excess ammonia which is not reacted in the catalyst bed and which is emitted to the atmosphere is referred to as ammonia slip. An important factor that affects the performance of an SCR is operating temperature. The temperature range for standard base metal catalyst is between 400-800°F. SCR is considered a technically feasible control technology for the proposed unit.

Selective non-catalytic reduction (SNCR)

SNCR processes utilize direct injection of ammonia or urea at high flue gas temperatures (1600°F - 1800°F) to reduce NO_X. The Exxon Thermal $DENO_X$ process utilizes ammonia injection and has been applied to fossil fuel boilers and incinerators. The urea injection technology, which is at an earlier stage of development, avoids the ammonia storage and handling concerns, but may have greater difficulty in achieving proper mixing for the reaction.

For the proposed boiler and its intended operational modes, it would be very difficult, if not impossible, to pinpoint the proper injection points for the reagents with varying boiler loads. Injection of reagents outside of the optimal temperature range significantly reduces the efficiency and increases the amount of ammonia passing through the system. The ammonia would either exit the system or condense on the fly ash captured in the particulate collection device. Ammonia remaining on the fly ash could cause the fly ash to become odorous. Based on the fact that injection of the reagents at the optimal temperature range will be virtually impossible and the emissions due to a high ammonia slip, SNCR is determined to be technically infeasible for this application and will not be further evaluated.

Low NOx burners

Low NO_X Burners (LNB) limit NO_X formation by controlling both the stoichiometric and temperature profiles of the combustion flame in each burner flame envelope. This control is achieved with design features that regulate the aerodynamic distribution and mixing of the fuel and air, yielding reduced O_2 in the primary combustion zone, reduced flame temperature, and reduced residence time at peak combustion temperatures. These results produce lower NO_X emissions during the combustion process. The installation of LNB is considered a technologically feasible option for the proposed boiler.

Separate Overfire Air (SOFA)

In the SOFA process, the injection of air into the firing chamber is staged into two zones. Staging of the combustion air reduces NO_X formation by two mechanisms. The staged combustion results in a cooler flame. In addition, the staged combustion also results in less oxygen reacting with fuel molecules. The degree of staging is limited by operational problems since the staged combustion results in incomplete combustion conditions and a longer flame. Designing the boiler using the SOFA approach is considered a technologically feasible option.

Low Excess Air (LEA)

All combustion processes require excess air in order to ensure that fuel molecules find and can react with oxygen. In the LEA approach, the amount of excess air supplied to the firing chamber is reduced, thereby lowering the combustion temperature. The lower combustion temperature reduces the amount of NO_X formed during the combustion process. With LEA firing, adjustments of air registers, fuel injector positions, overfire air dampers, and operational controls reduce the minimum excess air level in the combustion chamber while maintaining proper boiler operations. Adjusting the boilers using the LEA approach on the proposal boiler is considered a technologically feasible option. The design of the proposed Unit 4 boiler incorporates the LEA principles detailed above.

Flue Gas Recirculation (FGR)

FGR controls NO_X by recycling a portion of the flue gas back into the primary combustion zone. The recycled air lowers NO_X emissions by two mechanisms: (1) the recycled gas is made up of combustion products which act as a diluent during combustion, thereby lowering combustion temperatures, and (2) by lowering the oxygen content in the primary flame zone. The amount of recirculation is based on flame stability. Typically, 15 to 20% of the total flue gas is recycled. The installation of FGR is considered a technologically feasible option. However, it is less effective than the other alternatives considered, and is therefore not a meaningful candidate for BACT.

Pollutant	BACT Control Technology	Range (lb / MM BTU)
NO_X	LNB/SCR	0.067 - 0.17
	LNB, SOFA and/SCR	0.07 - 0.15
	SCR	0.08 - 0.17
	SCR and Good Combustion Practice	0.08
	LNB	0.09
	LNB with Flue Gas Recirculation	0.16
	SCR or SNCR	0.17

Low-NO_X Burners (LNB) and Selective Catalytic Reduction (SCR) are the appropriate BACT technologies for control of NO_X emissions from the Unit 4 boiler. These two technologies were chosen as they can achieve the highest degree of control of NO_X emissions; have limited environmental, economic, and energy impacts; and are demonstrated technologies on both western low-sulfur coal and high-sulfur bituminous coal.

The Big Cajun II Unit 4 system, using LNB and SCR designed to limit NO_X emissions, will achieve and emission limit of 0.07 lb/MMBtu. No other control technology is available that would consistently result in lower emissions. Compliance with a 30-day rolling average will be determined with initial performance testing and a continuous emission monitoring system (CEMS). Good work practices will be employed during startup, shutdown, and malfunction periods to minimize NO_X emissions.

Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

Combustion controls in place and Best Operating Practices

The main controls for NO_X on the unit are a combination of combustion controls and the selective catalytic reduction (SCR) system. The SCR has specific temperature ranges that it must operate in. When the unit is firing fuel oil during startup, the temperature ranges are not achieved, and the SCR can not operate. Because the operation of the SCR is technically infeasible, the only methods that can be used to minimize NO_X emissions are the combustion controls in place on the unit and the use of good combustion practices.

Once the solid fuel is introduced into the boiler, the operating conditions necessary to engage the SCR slowly begin to materialize. During the period when coal and oil are co-fired during startup and the SCR is not in operation, combustion controls will help minimize NO_X emissions. Once the appropriate operating parameters are achieved, the SCR is activated and the NO_X emissions are further reduced. Combustion controls in place and best operating practices are the appropriate BACT technologies for control of NO_X emissions from the Unit 4 boiler during startup/shutdown operations.

BACT analyses for CO

15-01 – Boiler No. 4(2B4) (EQT021)

CO is a product of incomplete combustion (PIC). The formation of CO results when there is insufficient residence time at high temperature or incomplete mixing to complete the final step in fuel carbon oxidation. PIC emissions are controlled through managed combustion practices including high temperatures, adequate excess air and residence time, and optimal fuel/air mixing during combustion. Note that in the case of CO emissions, it is not possible to minimize these emissions without regard to increases in emissions of other pollutants, particularly NO_X. Control of CO is accomplished by providing adequate fuel residence time and high temperature in the combustion zone to ensure complete combustion.

Thermal Oxidation

Thermal oxidation is a post combustion control option that converts CO and VOC to carbon dioxide (CO_2) and H_2O at high temperatures (1200°F to 2000°F). Exhaust gases from the boiler stack will be approximately 174°F. Raising exit gas temperatures to the appropriate range would require a significant amount of energy and generate a large quantity of secondary emissions. Consequently, thermal oxidation is deemed infeasible and is eliminated from further consideration.

Catalytic Oxidation

There are processes used to oxidize CO in the presence of a catalyst. There are no known installations of oxidation catalysts on coal-fired power plant boilers. In addition to the catalyst being extremely expensive, it would be expected that poisoning or fouling of the catalyst would be likely due to the nature of the flue gas stream. As with SCR, oxidation catalysts are temperature sensitive and would have to be located within the heat recovery section of the boiler to be effective. The load-following operating mode of the boiler will result in a varying temperature profile through the boiler, making selection of an effective catalyst location difficult. For this reason, oxidation catalyst on a coal-fired power plant is technically infeasible at this time.

Good Combustion Practices

Appropriate combustion control techniques have been selected as the control technology for CO. There are no add-on control technologies available for application to coal-fired steam generators. An ideal burner scenario designed for complete combustion would allow for maximum temperatures, maximum residence time, and enough excess air and turbulence to assure good mixing and availability of O_2 to allow for the complete conversion of CO and VOC to CO_2 and water. Unfortunately, CO and VOC emissions generally vary inversely with NO_X emissions (i.e., decreasing residence time and temperature reduces NO_X emissions).

CO emissions can be controlled using good combustion practices such as good equipment design and proper combustion techniques such as optimizing the air/fuel ratio. These control options are usually less efficient than other technologies, but they have minimal environmental and energy impacts.

The Big Cajun II Unit 4 system will use appropriate combustion control techniques to limit CO emissions to the determined BACT limit of 0.135 lb/MMBtu. No other control technology is available that would consistently result in lower emissions. Compliance with a 30-day rolling average will be determined with initial performance testing and a continuous emission monitoring system (CEMS). Good work practices will be employed during startup, shutdown, and malfunction periods to minimize CO emissions. The addition of high-sulfur bituminous coal will not adversely affect the CO emission limit at Big Cajun II Unit 4, LLC.

Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

Combustion controls in place and Best Operating Practices

A review of the startup procedures for Boiler No. 4 indicate that the use of good combustion practices during startup and/or shutdown is the only technically feasible option. This will hold true for both the initial startup on fuel oil as well as the co-firing of coal and fuel oil. Good combustion practices are the appropriate BACT technologies for control of NO_X emissions from the Unit 4 boiler during startup/shutdown operations.

BACT analyses for VOC

15-01 – Boiler No. 4(2B4) (EQT021)

Volatile Organic Compounds (VOCs) are considered PICs and their formation are directly proportional to the overall combustion efficiency of the source. VOCs include long chain hydrocarbons (greater than two carbon atoms) associated with photochemical smog formation. Non-methane and non-ethane hydrocarbons best characterize VOCs. Unburned hydrocarbons emissions can include all vapor phase organic compounds emitted from a combustion source.

Combustion Control Techniques

Appropriate combustion control techniques have been selected as BACT for VOC. There are no add-on control technologies available for application to coal-fired steam generators. The addition of high-sulfur bituminous coal will not adversely affect the VOC emission limit.

The Big Cajun II Unit 4 system will use appropriate combustion control techniques to limit VOC. Updated design information indicates that the permitted VOC BACT technology for the boiler is capable of maintaining VOC emissions less than 0.0034 lb/MMBtu rather than the originally permitted 0.015 lb/MMBtu. No other control technology is available that

would consistently result in lower emissions. Compliance with a 30-day rolling average will be determined with initial performance testing. Good work practices will be employed during startup, shutdown, and malfunction periods to minimize VOC emissions.

Scenario 1: Cold 15-01 SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)
Scenario 2: Hot 15-01 SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)

Combustion Control Techniques

Appropriate combustion control techniques have been selected as BACT for VOC during startup/shutdown operations. There are no add-on control technologies available for application to coal-fired steam generators. A review of the startup procedures for Unit 4 indicates that good combustion practices are the only technically feasible option. This is true for both the initial startup on fuel oil as well as co-firing of coal and fuel oil.

BACT analysis for H_2SO_4 Mist

15-01 – Boiler No. 4(2B4) (EQT021)

A relatively small percentage of sulfur in the fuel stream will be oxidized to sulfur trioxide (SO_3) during the combustion process, and additional SO_2 will be oxidized to SO_3 as the flue gas passes through the SCR catalyst. SO_3 combines with the flue gas moisture to form vapor-phase or condensed sulfuric acid (H_2SO_4) at temperatures below about 500°F. In the furnace and in the flue gas path up to the air heater the predominant form of sulfur oxide is vapor-phase SO_3, while downstream of the air heater the predominant form is vapor-phase or condensed H_2SO_4.

The use of high-sulfur bituminous coal at Big Cajun II Unit 4 will increase uncontrolled emission levels of H_2SO_4 mist when compared to uncontrolled H_2SO_4 mist emissions when firing PRB coal. Additional emission controls will be necessary to control H_2SO_4 mist emissions from Big Cajun II Unit 4. When firing low-sulfur PRB coal, Big Cajun II Unit 4 will generate low concentrations of SO_2 in the flue gas, which inherently reduces the potential generation of SO_3 in the combustion process and across the SCR catalyst. In addition, low-sulfur PRB coal produces a highly alkaline ash which provides additional mechanisms to chemically reduce H_2SO_4 mist as the flue gas progresses through the air heater to the baghouse. Therefore, the selection of BACT for H_2SO_4 mist emissions is based on the high-sulfur bituminous coal operating scenario.

H_2SO_4 mist control can be achieved by the use of post-combustion emission control systems, including semi-dry and Wet FGD systems, alkali injection systems and wet ESPs.

Semi-Dry Flue Gas Desulfurization

A semi-dry FGD system upstream of a baghouse, one of the SO_2 reduction options allowed by the current PSD permit, is effective in chemically removing H_2SO_4 mist. Big Cajun II

Unit 4, LLC estimates that this combination of controls will reduce greater than 90 percent of the potential H_2SO_4 emissions. However, the use of high-sulfur bituminous coal at Big Cajun II Unit 4 requires the use of a Wet FGD system, determined as BACT for SO_2 control, to provide high SO_2 removal efficiency when utilizing high sulfur bituminous coal. Therefore, the semi-dry FGD/fabric filter option is not a technically feasible option for the high sulfur bituminous coal operating scenario.

Wet Flue Gas Desulfurization

With the Wet FGD system which will be utilized at Big Cajun II Unit 4 to control SO_2 emissions, the flue gas temperature is reduced to saturation and thus condenses H_2SO_4 to very fine aerosols. Approximately 25 to 50 percent of the H_2SO_4 mist will be collected by the Wet FGD system. This H_2SO_4 mist removal efficiency alone is not sufficient to reduce the total H_2SO_4 mist emissions to levels required to satisfy BACT requirements for high-sulfur coal applications. However, the Wet FGD system will contribute to the overall air quality control system H_2SO_4 mist emission reductions.

Wet Electrostatic Precipitator (ESP)

Wet ESPs have been used extensively in other industries to control fine particulates and acid mists. However, the experience with coal-fired power plants has been limited. Most of the power plant applications have been projects that utilize high-sulfur fuels with potential for high SO_3 emissions (e.g., Orimulsion fuel and pet coke). The principal of operation for a wet ESP are similar to a dry ESP, which include a three step process:

1. Charging of the entering particles;
2. Collection of the particles on an oppositely charged surface; and
3. Cleaning the collection surface.

The principal difference between a dry and wet ESP is that dry ESPs use mechanical forces to dislodge the collected dust; and wet ESPs use either a continuous or intermittent liquid flow across the collection areas. A wetted collection area allows high power levels in a wet ESP and elimination of re-entrainment of the collected particulates. Therefore, wet ESPs can collect sub-micron particles and acid mist very efficiently. H_2SO_4 mist reduction efficiencies of greater than 90 percent are obtainable with wet ESPs.

Sorbent Injection Systems

There are a number of sorbent injection alternatives that can be implemented to lower H_2SO_4 mist emissions from new coal-fired power plants. Much of the development work related to these options is a result of visible acid mist plumes resulting from recent additions of SCR systems on high-sulfur coal plants equipped with Wet FGD systems. There are various alkalis that can be injected at various points in the flue gas path. For example, magnesium hydroxide, magnesium oxide powder, hydrated lime, sodium bicarbonate, ammonia, and sodium bisulfite have all been evaluated as options for SO_3/H_2SO_4 control from coal-fired

power plants. Each option has various advantages and disadvantages depending upon project specifics. Alkali injection has been demonstrated to reduce H_2SO_4 mist emissions by greater than 90 percent.

Big Cajun II Unit 4 will use a combination of technology options to limit H_2SO_4 mist emissions. Sorbent injection upstream of the baghouse as well as the Wet FGD system will be used to reduce H_2SO_4 mist emissions. In this location sorbent injection has the additional advantage of protection against corrosion in the fabric filter system.

Because Big Cajun II Unit 4 will use one of the "top" H_2SO_4 mist control options (sorbent injection) in addition to the wet FGD system, no economic, energy or environmental evaluations of H_2SO_4 mist controls are required.

Pollutant	BACT Control Technology	Range (lb / MM BTU)
H_2SO_4 mist	Wet FGD	0.0014 – 0.0400
	Lime Spray Dryer FGD/FF	0.000184 - 0.0110
	Wet FGD & Wet ESP	0.00497

Big Cajun II Unit 4, LLC will use sorbent injection upstream of the baghouse and the Wet FGD system for H_2SO_4 mist control. The BACT emission limit for H_2SO_4 mist is 0.0075 lb/MMBtu, based on estimates of potential uncontrolled sulfuric acid emissions while firing high-sulfur bituminous coal. Compliance with the H_2SO_4 mist BACT limit will be determined based on an initial stack test. Big Cajun II Unit 4, LLC plans to operate a wet scrubber as part of the compliance assurance monitoring (CAM) plan for H_2SO_4, which will include parametric testing after the start of commercial operations to establish appropriate indicator ranges to assure compliance with the H_2SO_4 emission limit for various blend ratios of PRB and high-sulfur bituminous coals.

BACT analysis for Fluoride

15-01 – Boiler No. 4(2B4) (EQT021)

Fluorine concentrations in coal can vary significantly, even within the same supply region. Big Cajun II Unit 4, LLC reviewed fluorine concentration data from coals in Wyoming (the primary supply region for PRB coal) and the Illinois Basin (primary supply region for high-sulfur bituminous coal) that are provided by the United States Geological Service (USGS). These data indicated a range of fluorine concentrations from 14 to 4,000 ppmw for Wyoming coals and from 13 to 700 ppmw for Illinois Basin coals. It is possible that differences in the selection of the coal fluorine concentrations can explain the differences in the hydrogen fluoride emission limits, even for similar coal supplies and BACT technologies.

Hydrogen fluoride emissions from Big Cajun II Unit 4 were calculated assuming a 95 percent reduction in uncontrolled hydrogen fluoride emissions by the Wet FGD system selected as BACT for SO_2 control. The selection of 95 percent removal for hydrogen fluoride is an

engineering judgment based on the expected SO_2 removal efficiency for high-sulfur bituminous coal. The uncontrolled emission factor for hydrogen fluoride was estimated based on the fluorine concentrations in the coal derived from a review of USGS trace element data for coals from Wyoming and the Illinois Basin.

Combustion of coal results in emissions of fluoride compounds, primarily in the form of hydrogen fluoride (HF). A portion of the fluorine in the fuel may be absorbed onto fly ash or bottom ash. Hydrogen fluoride is generally water soluble and readily controlled by acid gas scrubbing systems, such as dry FGD/baghouse systems and Wet FGD systems.

Two control technologies for control of hydrogen fluoride emissions from coal-fired boilers have been identified:

- Wet FGD systems
- Dry FGD/baghouse systems

Wet FGD Systems

Wet FGD systems, in addition to removing SO_2 from the flue gas, are also effective in removing other acid gases such as hydrogen fluoride and hydrogen chloride. The Wet FGD alkaline reagent (i.e., limestone slurry) reacts with the fluoride in the flue gas to form calcium fluoride that is removed from the scrubber with the sludge.

Dry FGD Systems

The lime slurry reagent used in a Dry FGD system reacts with the fluorides in the flue gas to form particulate calcium fluoride. This dry material is captured in the downstream fabric filter along with the fly ash and calcium sulfate from the sulfur removal process. Big Cajun II Unit 4, LLC has eliminated Dry FGD as a control option due to the necessity to control SO_2 emissions to a high efficiency level when firing high-sulfur coal. Therefore, the Dry FGD system has been eliminated from further consideration.

Wet FGD system is the appropriate control technology for control of hydrogen fluoride emissions from the Unit 4 boiler. An emission limit for hydrogen fluoride of 0.00056 lb/MMBtu as the BACT emission limit for Big Cajun II Unit 4. The Wet FGD system was chosen as it is the technology that can achieve a high degree of control of hydrogen fluoride emissions, has limited environmental, economic, and energy impacts, and is also selected as BACT for SO_2 control.

A summary of BACT costs for technologies eliminated for economic reasons is presented in Table I.

B. ANALYSIS OF EXISTING AIR QUALITY

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants to be emitted in significant amounts from the proposed Big Cajun II Unit 4's major modification. PM_{10}, SO_2, NO_X, CO, and VOC are pollutants of concern in this case.

ISCST3 modeling of PM_{10} emissions associated with the modification show a maximum predicted 24-hour PM_{10} impact of 22.45 $\mu g/m^3$, above the significance level of 5 $\mu g/m^3$. The maximum predicted annual PM_{10} impact is 5.79 $\mu g/m^3$, above the significance level of 1 $\mu g/m^3$. Because the 24-hour maximum impact for PM_{10} is above the deminimis level of 10 $\mu g/m^3$, preconstruction monitoring is required. However; the ambient air monitoring station in Port Allen, Louisiana, provides sufficient data and alleviates the need to conduct preconstruction monitoring.

Screen dispersion modeling of SO_2 emissions associated with the modification show a maximum predicted 3-hour impact of 105.4 $\mu g/m^3$, above the significance level of 25 $\mu g/m^3$. The maximum predicted 24-hour SO_2 impact is 28.14 $\mu g/m^3$, which is above the significance level of 5 $\mu g/m^3$. The maximum predicted annual SO_2 impact is 0.31 $\mu g/m^3$, below the significance level of 1 $\mu g/m^3$. Because the 24-hour maximum impact for SO_2 is above the deminimis level of 13 $\mu g/m^3$, preconstruction monitoring is required. However; the ambient air monitoring station in Port Allen, Louisiana, provides sufficient data and alleviates the need to conduct preconstruction monitoring.

The ISCST3 modeling of NO_X emissions associated with the modification show a maximum predicted annual NO_X impact of 0.16 $\mu g/m^3$, below the significance level of 1 $\mu g/m^3$. Because the annual maximum impact for NO_X is below the deminimis level of 14 $\mu g/m^3$, preconstruction monitoring, further refined NAAQS modeling, and increment consumption analyses were not required.

ISCST3 modeling of CO emissions associated with the modification show a maximum predicted 1-hour CO impact of 266.5 $\mu g/m^3$, below the significance level of 2,000 $\mu g/m^3$. The maximum predicted 8-hour CO impact is 84.57 $\mu g/m^3$, below the significance level of 500 $\mu g/m^3$. Because the 8-hour maximum impact for CO is below the deminimis level of 575 $\mu g/m^3$, preconstruction monitoring, further refined NAAQS modeling, and increment consumption analyses were not required.

VOC emissions from the proposed modification are less than 100 tons per year; therefore, preconstruction monitoring and an ambient air quality analysis are not required.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Because the maximum modeled PM_{10} and SO_2 impacts exceeded the PSD significance levels, refined NAAQS modeling was required. To determine the total ambient impact for

comparison with the NAAQS, the maximum concentrations for PM_{10} and SO_2 must be added to the background concentration in the area. The background concentration is the ambient concentration in the impact area resulting from sources not considered to be "nearby" sources, such as area and mobile sources, natural sources, and distant point sources.

The NAAQS modeling analysis examined four scenarios for PM_{10} analysis: Normal Operations, Coal Emergency Operations, Limestone Emergency Operations, and Coal + Limestone Operations. Both the maximum 24-hour and Annual total PM_{10} impacts including background occurred during the Normal Operations scenario. The maximum 24-hour total PM_{10} impact including background is predicted to be 95.48 $\mu g/m^3$, 63.7% of the NAAQS of 150 $\mu g/m^3$ for the 24-hour PM_{10} averaging period. The maximum Annual total PM_{10} impact including background is predicted to be 41.6 $\mu g/m^3$, 83.2% of the NAAQS of 50 $\mu g/m^3$ for the Annual PM_{10} averaging period.

The maximum 3-hour total SO_2 impact including background is predicted to be 1,163.9 $\mu g/m^3$, 89.5% of the NAAQS of 1,300 $\mu g/m^3$ for the 3-hour SO_2 averaging period. The maximum 24-hour total SO_2 impact including background is predicted to be 324.9 $\mu g/m^3$, 89% of the NAAQS of 365 $\mu g/m^3$ for the 24-hour SO_2 averaging period.

Refined modeling demonstrates compliance with the PM_{10} and SO_2 NAAQS; therefore, Big Cajun II Unit 4's proposal will not cause or contribute to a violation of the applicable NAAQS standard.

D. PSD INCREMENT ANALYSIS

Because the maximum modeled PM_{10} and SO_2 impact exceeded its PSD significance level, a determination of PSD increment consumption was required for these pollutants.

The PSD Class II increment modeling analysis examined four scenarios for PM_{10} analysis: Normal Operations, Coal Emergency Operations, Limestone Emergency Operations, and Coal + Limestone Operations. The maximum predicted PM_{10} increment consumption for the 24-hour averaging period is 17.32 $\mu g/m^3$ (58% of the significance level), during the Limestone Emergency Operations Scenario, predicted to occur 2.1 km from the plant boundary. Due to large negative 'baseline' sources near the facility, the increment analysis for the Annual averaging period for PM_{10} was less than 0 $\mu g/m^3$ under all four operating scenarios.

The maximum predicted SO_2 increment consumption for the 3-hour averaging period is 336.7 $\mu g/m^3$ (66% of the significance level), predicted to occur 13.8 km from the plant boundary. The maximum predicted SO_2 increment consumption for the 24-hour averaging period is 59.54 $\mu g/m^3$ (65% of the significance level), predicted to occur 21.2 km from the plant boundary.

Since the predicted maximum increment consumption for PM_{10} and SO_2 emissions were below the applicable increment standards, the proposed modification will not cause or contribute to any PSD increment violation.

A summary of the air quality analyses is also presented in Table II.

E. SOURCE RELATED GROWTH IMPACTS

During the construction phase of the Big Cajun II Unit 4 Project, approximately 1,500 people will be employed for various periods of time and in various capacities. Of those, approximately half will be in the construction sector with the balance in other disciplines such as engineering, consulting, technical services, and procurement. Operation of the facility will require approximately 40 additional employees (eight on day shift and 32 [four groups of eight] on rotating 12-hour shifts) over current staffing levels. Most of these positions would be recruited locally (within 50 miles of the facility). A portion of the new employees, estimated to be less than half, could choose to relocate with a subsequent increase in permanent residences to areas nearer the facility. These new residences are not anticipated to appreciably add to air emissions in the vicinity of the facility.

No new local industrial facilities related to the Big Cajun II Unit 4 Project are anticipated. An increase in commercial activity related to transportation of fuels and limestone to the facility and removal of by-products (fly ash, bed ash, and gypsum) would occur; however, any emissions increases would be from mobile sources and are not part of this analysis.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

G. CLASS I AREA IMPACTS

Breton National Wildlife Area, the nearest Class I area, is approximately 250 miles from the site, precluding any significant impact.

H. TOXIC IMPACT

Big Cajun II Unit 4, LLC conducted a modeling analysis of Toxic Air Pollutants (TAPs) with both chronic effects (e.g., carcinogenic, such as benzene) and acute effects (such as

ammonia). The modeled results were compared to 7.5 percent of the standard in LAC 33:III.Chapter 51.Table 2 at all off property receptors. For all TAPs, it was determined that none of the off-site impacts exceeded 7.5 percent of the standard, and no further modeling was required. Also, the selection of control technology based on the BACT analysis included consideration of control of toxic emissions.

Per §5105.B.2, electric utility steam-generating units are not regulated under Subchapter A of LAC 33:III.Chapter 51. Ammonia emissions from the SCR system, chlorine emissions from the cooling tower, and barium emissions from the coal conveying and transfer equipment will be regulated under Chapter 51.

V. CONCLUSION

The Air Permits Division has made a preliminary determination to approve the construction of the Unit 4 at Louisiana Generating LLC's Big Cajun II Power Plant, New Roads, Pointe Coupee Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

SPECIFIC CONDITIONS

Louisiana Generating LLC - Big Cajun II Power Plant
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1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated October 11, 2006, and subject to the emission limitations in the Emission Rates for Criteria Pollutants Table and other specified conditions. Specifications submitted are contained in the application and Emission Inventory Questionnaire dated April 28, 2006, along with supplemental information dated June 27, July 13, July 21, August 28, September 12, September 28, October 2, and October 6, 2006.

MAXIMUM ALLOWABLE EMISSION RATES	
ID / Description	BACT Limits
01-01 – Coal Railcar Unloading Building (EQT058)	PM_{10}: 0.08 lb/hr, 0.09 TPY; Apply a dry fogging or equivalent dust suppression system.
05-01 – Emergency Unloading (EQT011)	PM_{10}: 1.24 lb/hr; < 0.01 TPY; Use best management practices and periodic pile watering.
15-01 – Boiler No. 4(2B4) (EQT021)	PM/ PM_{10}: 0.015 lb/MM BTU (filterable); 98.5 lb/hr; 431.4 TPY; Use of a fabric filter. SO_2: 0.10 lb/MM BTU (30-day rolling average); 1,516.7 lb/hr; 2,875.9 TPY; Wet flue gas desulfurization. NO_X: 0.07 lb/MM BTU (30-day rolling average); 758.9 lb/hr; 2,013.1 TPY; Combination of low-NOX burners and selective catalytic reduction. CO: 0.135 lb/MM BTU; 1,772.8 lb/hr; 3,882.5 TPY; Combustion control. VOC: 0.0034 lb/MM BTU; 22.3 lb/hr; 97.80 TPY; Combustion control. Good work practices. H_2SO_4 Mist: 0.0075 lb/MM BTU; 49.2 lb/hr; 215.7 TPY; Wet flue gas desulfurization and sorbent injection upstream of the baghouse. Flourides: 0.00056 lb/MM BTU; 13.85 lb/hr; 60.66 TPY; Combined use of sorbent injection and wet flue gas desulfurization.
Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008)	PM/ PM_{10}: 98.49 lb/hr; Use low ash fuels and good combustion practices. SO_2: 984.9 lb/hr; Use low sulfur fuel oil and activate the Wet FGD system once coal is added during startup. NO_X: 1,447.8 lb/hr; Use the combustion controls in place and best operation practices. Activate the SCR once the appropriate parameters are reached during startup. CO: 1,313.2 lb/hr; Use good combustion practices. VOC: 33.49 lb/hr; Use appropriate combustion control techniques.
Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)	PM/ PM_{10}: 83.0 lb/hr; Use low ash fuels and good combustion practices. SO_2: 829.8 lb/hr; Use low sulfur fuel oil and activate the Wet FGD system once coal is added during startup. NO_X: 1,130.2 lb/hr; Use the combustion controls in place and best operation practices. Activate the SCR once the appropriate parameters are reached during startup. CO: 1,106.4 lb/hr; Use good combustion practices. VOC: 21.4 lb/hr; Use appropriate combustion control techniques.

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MAXIMUM ALLOWABLE EMISSION RATES	
ID / Description	BACT Limits
17-01 – Unit 4 Ash Silo (EQT023)	PM_{10}: 0.39 lb/hr; 1.70 TPY; Silos vent emissions to a filter system which reduces emissions by 99%. Sold ash to off-site customers is loaded into sealed trucks or covered trucks (wetted) and emissions are routed to filter system. Ash that is stored in the on-site landfill is first conditioned to approximately 12% moisture then transferred to trucks.
PC1 – Barge Unloading (EQT034)	PM_{10}: 1.24 lb/hr, 0.19 TPY; Use of a baghouse for unloading operations. Installation of the baghouse is conditional if the Unit 4 Project becomes operational.
T1 – Transfer Tower T1 (EQT036)	PM_{10}: 0.01 lb/hr; 0.01 TPY; Partial enclosure of transfer operations and use of spoon chutes. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.
T1A – Barge Unloading Transfer (EQT037)	PM_{10}: 0.19 lb/hr, 0.03 TPY; Partial enclosure of the bucket elevator and use of spoon chutes. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.
T2 – Transfer Tower T2 (EQT038)	PM_{10}: 0.01 lb/hr, 0.01 TPY; Partial enclosure of transfer operations and use of spoon chutes. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.
T3 – Transfer Tower T3 (EQT039)	PM_{10}: 0.01 lb/hr, 0.01 TPY; Partial enclosure of transfer operations and use of spoon chutes. Installation of the spoon chutes is conditional if the Unit 4 Project becomes operational.
01-06 – Stamler Reclaim System (EQT062)	PM_{10}: 2.98 lb/hr, 0.12 TPY; Point uses a telescoping chute to minimize emission.
02-06 – Luffing/Slewing Stacker Feed (EQT063)	PM_{10}: 6.20 lb/hr, 2.23 TPY; Outdoor storage piles are watered to control fugitive emissions; Use best management practices.
03-06 – Luffing/Slewing Stacker (EQT064)	PM_{10}: 6.20 lb/hr, 0.11 TPY
04-06 – Portal Reclaimer (EQT065)	PM_{10}: 5.95 lb/hr, 2.14 TPY; Outdoor storage piles are watered to control fugitive emissions.
05-06 – Limestone Rail Car Unloading (EQT066)	PM_{10}: 1.07 lb/hr, 0.03 TPY; Apply a dry fogging or equivalent dust suppression system on the receiving hoppers of the limestone unloading operations.
06-06 - Emergency Limestone Truck Unloading (EQT067)	PM_{10}: < 0.01 lb/hr, < 0.01 TPY; Use best management practices.
07-06 - Emergency Limestone Reclaim (EQT068)	PM_{10}: 1.79 lb/hr, 0.02 TPY; Partially enclose this point and use a dry fogging or equivalent dust suppression system
08-06 – Limestone Transfer Tower (EQT069)	PM_{10}: 0.12 lb/hr, 0.50 TPY; Use a total enclosure and dry fogging or equivalent dust suppression system.
09-06 – Limestone Stackout (EQT070)	PM_{10}: 0.12 lb/hr, 0.50 TPY; Equip point with a telescoping chute to minimize emissions.
10-06 – Limestone Reclaim (EQT071)	PM_{10}: 0.02 lb/hr, 0.08 TPY
11-06 – Limestone Day Silos (EQT072)	PM_{10}: < 0.01 lb/hr, 0.02 TPY; Use a baghouse to control emissions.
12-06 – Gypsum Dewatering Building (EQT073)	PM_{10}: 0.27 lb/hr, 1.17 TPY; Use best management practices to control emissions.

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MAXIMUM ALLOWABLE EMISSION RATES	
ID / Description	BACT Limits
13-06 – Gypsum Transfer Tower (EQT074)	PM_{10}: 0.13 lb/hr, 0.59 TPY; Use best management practices to control emissions.
14-06 – Gypsum Radial Stacker Feed (EQT075)	PM_{10}: 0.13 lb/hr, 0.59 TPY; Use best management practices to control emissions.
15-06 – Gypsum Transfer to Storage Piles (EQT076)	PM_{10}: 0.13 lb/hr, 0.59 TPY; Use best management practices to control emissions.
16-06 – Gypsum Truck Loading (EQT077)	PM_{10}: 0.16 lb/hr, 0.24 TPY; Use best management practices to control emissions.
17-06 – Activated Carbon Silo Bin Vent (EQT078)	PM_{10}: 0.12 lb/hr, 0.04 TPY; Control emissions through the use of a dust collector (baghouse or filter vent).
18-06 – Sorbent Silo Bin Vent (EQT079)	PM_{10}: 0.12 lb/hr, 0.04 TPY; Control emissions through the use of a dust collector (baghouse or filter vent)
19-06 – Unit 4 Fly Ash Truck Loading (EQT080)	PM_{10}: 0.08 lb/hr, 0.03 TPY
20-06 – Unit 4 Bottom Ash Truck Loading (EQT081)	PM_{10}: 0.01 lb/hr, 0.06 TPY
FUG 1 – Coal Handling Conveyors (16 sources) (FUG003)	PM_{10}: 17.21 lb/hr, 0.88 TPY; Cover the conveyors and condition, by water or chemical suppression, prior to movement.
FUG 2 – Coal Piles (FUG002)	PM_{10}: 903.00 lb/hr, 1.03 TPY; Apply a surfactant or water to the piles as needed to limit fugitive emissions.
FUG 5 – Road Emissions (FUG005)	PM_{10}: 4.58 lb/hr, 18.28 TPY; Use of water spray to control dust emissions.
FUG 6 – New Coal Conveyors (FUG010)	PM_{10}: 20.98 lb/hr, 0.74 TPY; Equip conveyors with covers to reduce wind erosion; Suppress dust through the use of dry fogging or equivalent dust suppression at conveyor transfer points.
FUG 7 – Limestone Conveyors (FUG011)	PM_{10}: 52.43 lb/hr, 0.37 TPY; Use a partial enclosure; Suppress dust through the use of dry fogging or equivalent dust suppression at conveyor transfer points.
FUG 8 – Limestone Pile Fugitive Emissions (FUG012)	PM_{10}: 56.3 lb/hr, 0.93 TPY; Use a wet suppression system to limit fugitive emissions.
FUG 9 – Limestone Emergency Unloading Fugitive Emissions (FUG013)	PM_{10}: 50.90 lb/hr, 0.37 TPY
FUG 10 – Gypsum Pile & Loading Fugitive Emissions (FUG008)	PM_{10}: 40.80 lb/hr, 0.90 TPY; Use best management practices to control fugitive emissions.
FUG 11 – Gypsum Conveyors (FUG009)	PM_{10}: 0.07 lb/hr, 0.03 TPY; Cover conveyors to reduce wind erosion.

BACT Limits determined in PSD-LA-677	
ID / Description	BACT Limits
02-01 – Transfer Tower T-20 (EQT008)	PM_{10}: < 0.01 lbs/hr; < 0.01 TPY; Total enclosure and vent to a baghouse.
04-01 – Transfer Tower T-22/ Crusher (EQT010)	PM_{10}: 0.05 lbs/hr; 0.08 TPY; Total enclosure and vent to a baghouse.
06-01 – Transfer Tower T-23 (EQT060)	PM_{10}: < 0.01 lbs/hr; < 0.01 TPY; Use of a fabric filter on the baghouse to control emissions.

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MAXIMUM ALLOWABLE EMISSION RATES	
ID / Description	BACT Limits
16-01 – Cooling Tower 3 (EQT022)	PM_{10}: 7.16 lb/hr; 20.90 TPY; Mechanical drift eliminator designed to achieve a drift rate of 0.002%.
S 3,4 – Lime Silo Operations (EQT035)	PM_{10}: < 0.01 lb/hr, < 0.01 TPY; Use of a baghouse at 99% control efficiency.
T4 – Transfer Tower T4/Crusher (EQT040)	PM_{10}: 0.50 lb/hr, 2.19 TPY; Use of partial enclosure and chemical spray.
T8 – Transfer Tower T8 (EQT041)	PM_{10}: 0.01 lb/hr, 0.01 TPY; Use partial enclosure and a baghouse.
FUG 3 – Fly Ash Pond (FUG004)	PM_{10}: 475.30 lb/hr, 0.581 TPY; Use of wetting agent on ash material prior to unloading.

2. Carbon Monoxide (CO) emissions from 15-01 – Boiler No. 4(2B4) (EQT021) shall be monitored by a Continuous Emission Monitoring System (CEMS) calibrated, operated, and maintained according to manufacturers' specifications. QA/QC provisions of Procedure 1 of 40 CFR 60 Appendix F shall also apply.

3. Permittee shall demonstrate compliance with the VOC limits by performing stack tests on EQT021, 15-01 - Boiler No. 4(2B4). The following test method and procedure from New Source Performance Standards (NSPS), 40 CFR 60, Appendix A, shall be used: Volatile Organic Compound (VOC) by Method 25A - Determination of Total Gaseous Concentration using a Flame Ionization Analyzer. Alternate stack test methods may be used with the prior approval of the Office of Environmental Assessment, Environmental Technology Division.

I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.

II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.

III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated April 28, 2006, along with supplemental information dated June 28, July 13, July 21, August 28, September 12, September 22, September 28, October 2, October 6, October 23, November 8, and November 29, 2006.

IV. This permit shall become invalid, for the sources not constructed, if:

A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;

B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.

VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.

VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of

Environmental Assessment, Air Quality Assessment Division.

VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.

IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.

XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.

A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:

1. Report by June 30 to cover January through March
2. Report by September 30 to cover April through June
3. Report by December 31 to cover July through September
4. Report by March 31 to cover October through December

D. Each report submitted in accordance with this condition shall contain the following information:

1. Description of noncomplying emission(s);
2. Cause of noncompliance;
3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:

A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;

B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;

C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.

XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.

XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.

XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Air Permits Division, within ninety (90) days after the event, to amend this permit.

XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)

3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

TABLE I: BACT COST SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Control Alternatives:		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
01-01 – Coal Railcar Unloading Building (EQT058)									
PM_{10}	Apply a dry fogging or equivalent dust suppression system	Yes/Yes		95%					Chosen as BACT
05-01 – Emergency Unloading (EQT011)									
PM_{10}	Use best management practices and periodic pile watering	Yes/Yes		90%					Chosen as BACT
15-01 – Boiler No. 4(2B4) (EQT021)									
PM_{10}	Baghouse (Fabric Filter)	Yes/Yes		99.9%					Chosen as BACT
	Dry Electrostatic Precipitator (ESP)	Yes/No	2, (b)						
SO_2	Wet Limestone Flue Gas Desulfurization (Wet FGD)	Yes/Yes		90%					Chosen as BACT
	Lime Spray Dryer Flue Gas Desulfurization (Dry FGD)	Yes/No	2, (b)						
NO_X	Selective Catalytic Reduction (SCR) and Low NO_X Burners (LNB)	Yes/Yes		70%					Chosen as BACT
	Selective Non-Catalytic Reduction (SNCR)	Yes/No	2, (b)						
	Separate Overfire Air (SOFA)	Yes/Yes							Incorporated into boiler design
	Low Excess Air (LEA)	Yes/Yes							Incorporated into boiler design
	Flue Gas Recirculation (FGR)	Yes/Yes							Not as effective
CO	Good Combustion Practices			0%					Chosen as BACT
	Thermal Oxidation	Yes/No	2, 3, (b)						
	Catalytic Oxidation	No/No	2, (b)						

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Louisiana Generating LLC - Big Cajun II Power Plant
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Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Control Alternatives:		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
VOC	Combustion Control Techniques	Yes/Yes		99.9%					Chosen as BACT
H_2SO_4	Wet Flue Gas Desulfurization and a Sorbent Injection System	Yes/Yes		99.99%					Chosen as BACT
	Semi-Dry Flue Gas Desulfurization	Yes/No	2, (b)						Not effective with high sulfur coal
	Wet Electrostatic Precipitator	Yes/Yes	2, (b)						Not as effective
Fluoride	Wet Flue Gas Desulfurization	Yes/Yes		99%					Chosen as BACT
	Dry Flue Gas Desulfurization	Yes/No	2, (b)						Not as effective
Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Startup/Shutdown (GRP008) **Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Startup/Shutdown (GRP009)**									
PM_{10}	Low Ash Fuels and Good Combustion Practices	Yes/Yes							Chosen as BACT
SO_2	Low Sulfur Fuel Oil / Wet Flue Gas Desulfurization when coal is added	Yes/Yes							Chosen as BACT
NO_X	Combustion Controls, Best Operating Practices, Use of SCR	Yes/Yes							Chosen as BACT
CO	Good Combustion Practices	Yes/Yes							Chosen as BACT
VOC	Combustion Control Techniques	Yes/Yes							Chosen as BACT
17-01 – Unit 4 Ash Silo (EQT023)									
PM_{10}	Filter System, Sealed Loading Operations, Pre-wetting	Yes/Yes		99.9%					Chosen as BACT
PC1 – Barge Unloading (EQT034)									
PM_{10}	Partial Enclosure and Spoon Chutes	Yes/Yes		98.5%					Chosen as BACT
T1 – Transfer Tower T1 (EQT036)									
PM_{10}	Partial Enclosure and Spoon Chutes	Yes/Yes		98.5%					Chosen as BACT

TABLE I: BACT COST SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
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Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Control Alternatives:		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
T1A – Transfer Tower T1A (EQT037)									
PM_{10}	Partial Enclosure and Spoon Chutes	Yes/Yes		98.5%					Chosen as BACT
T2 – Transfer Tower T2 (EQT038)									
PM_{10}	Partial Enclosure and Spoon Chutes	Yes/Yes		98.5%					Chosen as BACT
T3 – Transfer Tower T3 (EQT039)									
PM_{10}	Partial Enclosure and Spoon Chutes	Yes/Yes		98.5%					Chosen as BACT
01-06 – Stamler Reclaim System (EQT062)									
PM_{10}	Use of a Telescopic Chute	Yes/Yes		50%					Chosen as BACT
02-06 – Luffing/Slewing Stacker Feed (EQT063)									
PM_{10}	Water Suppressant at Coal Storage Piles	Yes/Yes		50%					Chosen as BACT
04-06 – Portal Reclaimer (EQT065)									
PM_{10}	Water Suppressant at Coal Storage Piles	Yes/Yes		50%					Chosen as BACT
05-06 – Limestone Rail Car Unloading (EQT066)									
PM_{10}	Dry Fogging System Applied to the Receiving Hoppers	Yes/Yes		95%					Chosen as BACT
	Full Enclosure and Baghouse	Yes/No	4, (b)						
06-06 – Emergency Limestone Truck Unloading (EQT067)									
PM_{10}	Best Management Practices	Yes/Yes							Chosen as BACT
07-06 – Emergency Limestone Reclaim (EQT068)									
PM_{10}	Partial Enclosure and Dry Fogging System	Yes/Yes		75%					Chosen as BACT
08-06 – Limestone Transfer Tower (EQT069)									
PM_{10}	Total Enclosure and Dry Fogging System	Yes/Yes							Chosen as BACT

TABLE I: BACT COST SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Control Alternatives:		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
09-06 – Limestone Stackout (EQT070)									
PM_{10}	Use of a Telescoping Chute	Yes/Yes							Chosen as BACT
11-06 – Limestone Day Silos (EQT072)									
PM_{10}	Baghouse	Yes/Yes		99.5%					Chosen as BACT
12-06 – Gypsum Dewatering Building (EQT073), 13-06 – Gypsum Transfer Tower (EQT074), 14-06 – Gypsum Radial Stacker Feed (EQT075), 15-06 – Gypsum Transfer to Storage Piles (EQT076), 16-06 – Gypsum Truck Loading (EQT077)									
PM_{10}	Cover Conveyors & Use Best Management Practices	Yes/Yes		50%					Chosen as BACT
	Baghouse	Yes/No	2, (b)						
17-06 – Activated Carbon Silo Bin Vent (EQT078)									
PM_{10}	Dust Collector	Yes/Yes		99.5%					Chosen as BACT
18-06 – Sorbent Silo Bin Vent (EQT079)									
PM_{10}	Dust Collector	Yes/Yes		99.5%					Chosen as BACT
FUG 2 – Coal Piles (FUG002)									
PM_{10}	Chemical/Water Surfactant	Yes/Yes							Chosen as BACT
	Coal Dome	No/No	1,4, (b)						
	Overburden (Soil)	Yes/No	1, (b)						
FUG 5 – Road Emissions (FUG005)									
PM_{10}	Paving/Water Spray	Yes/Yes		50%					Chosen as BACT
FUG 6 – New Coal Conveyors (FUG010)									
PM_{10}	Cover Conveyors & use Dry Fogging	Yes/Yes		90%					Chosen as BACT

TABLE I: BACT COST SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Control Alternatives:		Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost ($)	Annualized Cost ($)	Cost Effectiveness ($/Ton)	Notes
FUG 7 – Limestone Conveyors (FUG011)									
PM_{10}	Cover Conveyors & use Dry Fogging	Yes/Yes		90%					Chosen as BACT
FUG 8 – Limestone Pile Fugitive Emissions (FUG012)									
PM_{10}	Water Suppression	Yes/Yes							Chosen as BACT
	Limestone Dome	No/No	1,4, (b)						
	Overburden (Soil) Cover	Yes/No	1, (b)						
	Chemical Surfactant	Yes/No	2, (b)						
FUG 10 – Gypsum Pile & Loading Fugitive Emissions (FUG010) **FUG 11 – Gypsum Conveyors (FUG009)**									
PM_{10}	Cover Conveyors & Best Management Practices	Yes/Yes		50%					Chosen as BACT
	Baghouse	Yes/No	2, (b)						

Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety
b) Technically infeasible, economic analysis was not performed

TABLE II
AIR QUALITY ANALYSIS SUMMARY

Louisiana Generating LLC - Big Cajun II Power Plant
Agency Interest No.: 38867
Louisiana Generating, LLC
New Roads, Pointe Coupee Parish, Louisiana

Pollutant	Averaging Period	Preliminary Screening Concentration ($\mu g/m^3$)	Level of Significant Impact ($\mu g/m^3$)	Significant Monitoring Concentration ($\mu g/m^3$)	At the Monitoring Station		Background ($\mu g/m^3$)	Maximum Modeled Concentration ($\mu g/m^3$)	Modeled + Background Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Modeled PSD Increment Consumption ($\mu g/m^3$)	Allowable Class II PSD Increment ($\mu g/m^3$)
					Monitored Values ($\mu g/m^3$)	Modeling results ($\mu g/m^3$)						
PM_{10}	24-hour	22.45	5	10	75	NA	75	20.48	95.48	150	17.32	30
	Annual	5.79	1	-	34	NA	34	7.6	41.6	50	0	17
SO_2	3-hour	105.4	25	-	566.6	NA	566.6	597.3	1,163.9	1300	336.7	512
	24-hour	28.14	5	13	172.9	NA	172.9	151.7	324.9	365	59.54	91
	Annual	0.31	1	-	NR	NR	NR	NR	NR	80	NR	20
NO_X	Annual	0.16	1	14	NR	NR	NR	NR	NR	100	NR	25
CO	1-hour	266.5	2000	-	NR	NR	NR	NR	NR	40,000	NR	-
	8-hour	84.57	500	575	NR	NR	NR	NR	NR	10,000	NR	-
Lead	3-month	NR	-	0.1	NR	NR	NR	NR	NR	1.5	-	-

NR = Not required.

Worksheet for Technical Review of Working Draft of Proposed Permit

Company Name:	**Louisiana Generating, LLC**	**AI #:**	**38867**	**TEMPO Activity No:**	**PER20060002 PER20060003 PER20060004**
Facility Name:	**Big Cajun II Power Plant**	**Remarks Submitted by:**	**Serugudi Mani (submitted December 1, 2006)**		
Permit Writer:	**Christopher Smith**	**Permit Writer Email address:**	**Christopher.smith@la.gov**		

Instructions

Permit Reference – Indicate specific portion(s) of the permit to which the remark relates (i.e. "Specific Condition 120", or "Section II Air Permits Briefing Sheet", etc.).

Remarks – Explain the basis for each remark. Provide regulatory citations where possible. If the remark is made due to an error or omission in the permit application this must be noted and the revised information ***must be submitted.*** Revised information may be submitted separately from this worksheet. Please be aware that revised information must be submitted in writing and certified by the Responsible Official, and if necessary, by a Professional Engineer licensed in Louisiana. *Please Note:* New or additional equipment, processes or operating conditions not addressed in the original permit application will be addressed on a case-by-case basis. The Department reserves the right to address such changes in a separate permit action.

DEQ Response – ***DO NOT COMPLETE THIS SECTION.*** This section will be completed by Air Permits Division of DEQ, included in the proposed permit package and made available for public review during any required public comment period.

- Additional rows may be added as necessary.
- Completed Form shall be emailed to the Permit writer in MS Word compatible format within the deadline specified in the email notification.

Permit Reference	Remarks	Air Permits Division Response (for official use only)
	I performed an FCE of Big Cajun II last quarter and did not have any areas of concern. They have addressed the start up emissions from boilers 1 and 2 by installing air pre heaters so that they could bring the ESP quickly to control the PM emissions and thereby reducing the excess emissions. EPA region 6 is still looking at the PSD concerns in respect of Boilers 1 and 2 For the past modifications implemented.	**Noted**

Worksheet for Technical Review of Working Draft of Proposed Permit

Company Name:	**Louisiana Generating, LLC**	**AI #:**	**38867**	**TEMPO Activity No:**	**PER20060002 PER20060003 PER20060004**
Facility Name:	**Big Cajun II Power Plant**	**Remarks Submitted by:**	**GARY ELLENDER (submitted November 29, 2006)**		
Permit Writer:	**Christopher Smith**	**Permit Writer Email address:**	**Christopher.smith@la.gov**		

Instructions

Permit Reference – Indicate specific portion(s) of the permit to which the remark relates (i.e. "Specific Condition 120", or "Section II Air Permits Briefing Sheet", etc.).

Remarks – Explain the basis for each remark. Provide regulatory citations where possible. If the remark is made due to an error or omission in the permit application this must be noted and the revised information ***must be submitted.*** Revised information may be submitted separately from this worksheet. Please be aware that revised information must be submitted in writing and certified by the Responsible Official, and if necessary, by a Professional Engineer licensed in Louisiana. *Please Note:* New or additional equipment, processes or operating conditions not addressed in the original permit application will be addressed on a case-by-case basis. The Department reserves the right to address such changes in a separate permit action.

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Permit Reference	Remarks	Air Permits Division Response (for official use only)
PSD Permit PSD-LA-677(M-1)		
Page 6 – 17-01 Unit 4 Ash Silo	In the second sentence, Replace "pneumatically loaded into sealed trucks" with "loaded into sealed trucks or covered trucks (wetted)" **Was not changed**	The requested changes in this comment have been incorporated on page 6 of PSD-LA-677(M-1) for 17-01 Unit 4 Ash Silo (EQT023) as requested.
Page 22 Second Paragraph	Under 11-06-Limestone Day Silos (EQT072), BC35 should be changed to BC36. **Was not changed**	The requested changes in this comment have been incorporated on page 22 of PSD-LA-677(M-1) for 11-06-Limestone Day Silos (EQT072) as requested.

Emissions Rates for TAPS/HAP & Other Pollutants		
EQT 021 (15-01)	Page 9 of 34 – Under Polynuclear Aromatic Hydrocarbons – 0.014 should be corrected to 0.037 **Was not changed**	According to LAC 33:III.5112, Note 7, those compounds listed as Naphthalene are not to be included as Polynuclear Aromatic Hydrocarbons (PAHs). The emissions of Naphthalene, 0.023 TPY, were deducted from the total emissions of PAHs, 0.037, in accordance with the regulations, for this permit modification.
	Zinc. Should be removed from spreadsheet (not emitted during normal operations)	The requested changes regarding Zinc in this comment have been incorporated in the Emissions Rates For TAPS/HAP & Other Pollutants section for EQT021, 15-01 Boiler No. 4(2B4), as requested.
GRP008	Remove lead from annual emissions.	The annual emissions for lead compounds are not listed in the Emissions Rates for TAPS/HAP & Other Pollutants section for GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown. GRP008 only lists the maximum (lb/hr) for PM_{10}, SO_2, NO_X, CO, and VOC emissions in the Emission Rates For Criteria Pollutants section.
	Remove Zinc from average and maximum rates. Only emitted during startup and shut down	The requested changes regarding Zinc in this comment have been incorporated in the Emissions Rates for TAPS/HAP & Other Pollutants section for GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown, as requested.
	Change PAH average emissions from 0.003 to 0.009 lb/hr and maximum emissions from 0.015 to 0.020 lb/hr	As mentioned above, the emissions for PAHs do not include the emissions of Naphthalene, according to LAC 33:III.5112, Note 7, in this permit.
Statement of Basis		
VI. Periodic Monitoring	Under "A federally enforceable condition requires the permittee to limit the total operating hours of EQT071, 10-06 – Limestone Reclaim, to 650 hours per year." Remove this requirement, operating time is now 8760 hr/yr	The requested changes in this comment have been incorporated in the Periodic Monitoring section of the Statement of Basis for EQT071, 10-06 – Limestone Reclaim, as requested.

Specific Conditions		
GRP008	1) 971: ...shall commence upon the first Commercial Operating Date (COD)... Change to: ...shall commence upon the Commercial Operating Date (COD) or the end of the shake down period	The requested changes in this comment have been incorporated in the Specific Conditions section of the Part 70 permit modification for GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown, as requested.
GRP009	1) 976: ...shall commence upon the first Commercial Operating Date (COD)... Change to: ...shall commence upon the Commercial Operating Date (COD) or the end of the shake down period	The requested changes in this comment have been incorporated in the Specific Conditions section of the Part 70 permit modification for GRP009, Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown, as requested.
GRP010	GRP010 is an addition. Add item to reflect that GRP010 is equivalent to EQT021 **Was not included**	In this permit modification, GRP010, Scenario 3: 15-01 NOP – Boiler No. 4 Normal Operations, represents a scenario for EQT021, 15-01 – Boiler No. 4(2B4), which describes normal operations over an entire year. These emission rates do not include start-up/shut-down operations and reflect emission rates provided on the Emission Inventory Questionnaire (EIQ) sheet for 15-01 – Boiler No. 4(2B4). A description of the relationship between EQT021 and GRP010 is provided in the Emission Rates Notes of the Emission Rates For Criteria Pollutants.
Emission Rates For Criteria Pollutants		
EQT021	VOC annual emission rate should be changed from 97.67 tpy to 98.00 tpy	The VOC annual emission rate for EQT021 has been changed from 97.67 TPY to 97.80 TPY to correspond with the VOC annual emission rate on the EIQ sheet submitted October 6, 2006 for this permit modification.
FUG011	Average lb/hr rate was not sent on worksheet to change number from 0.49 to 1.298	In the Emission Rates For Criteria Pollutants section of the Part 70 permit modification, the average (lb/hr) rate FUG011, FUG 7 – Limestone Conveyors, remains listed in the permit as on the EIQ sheet submitted on October 23, 2006.

GRP008	All average and annual numbers need to be deleted. All maximum numbers are correct as written.	The requested changes in this comment have been incorporated in the Emission Rates For Criteria Pollutants section of the Part 70 permit modification for GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown, as requested.
GRP009	All average and annual rates need to be deleted. VOC maximum emission rate should be 28.2 lb/hr	The requested changes in this comment have been incorporated in the Emission Rates For Criteria Pollutants section of the Part 70 permit modification for GRP009, Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown, as requested.
GRP010	All numbers are correct as written. All annual numbers should be removed.	The annual emission rates, listed under GRP010, in this scenario of EQT021, 15-01 – Boiler No. 4(2B4), remain in the permit. This scenario lists the average (lb/hr), maximum (lb/hr), and annual (TPY) emission rates for the boiler under normal, year-round operations.
Inventories		
EQT010 EQT011 EQT060 EQT062 EQT064 EQT066 EQT067 EQT068 EQT077	Inventories list hours of operation in the operating time column, but instead should only reference Maximum Operating Rate. The operating time for these should be removed or changed to 8760 hr/yr (All Year)	In the Inventories section of the Part 70 permit modification, the Operating Time listed for a source corresponds with the same operating time for a source's emission calculations in the application and EIQ sheets (including any revisions). Big Cajun II can operate any of these sources throughout the year, but must limit operations for each source where appropriate.
FUG011	Maximum operating rate should be included as 500,000 tons per year, and operating time should be removed or changed to 8760 hr/yr (All Year)	In the Inventories section of the Part 70 permit modification, the Maximum Operating Rate for this source has been listed as 500,000 tons per year. The Operating Time listed for FUG011, FUG 7 – Limestone Conveyors, remains listed in the permit as on the EIQ sheet submitted on October 23, 2006.

Worksheet for Technical Review of Working Draft of Proposed Permit

Company Name:	**Louisiana Generating, LLC**	**AI #:**	**38867**	**TEMPO Activity No:**	**PER20060002 PER20060003 PER20060004**
Facility Name:	**Big Cajun II Power Plant**	**Remarks Submitted by:**	**GARY ELLENDER (submitted November 8, 2006)**		
Permit Writer:	**Christopher Smith**	**Permit Writer Email address:**	**Christopher.smith@la.gov**		

Instructions

Permit Reference – Indicate specific portion(s) of the permit to which the remark relates (i.e. "Specific Condition 120", or "Section II Air Permits Briefing Sheet", etc.).

Remarks – Explain the basis for each remark. Provide regulatory citations where possible. If the remark is made due to an error or omission in the permit application this must be noted and the revised information ***must be submitted.*** Revised information may be submitted separately from this worksheet. Please be aware that revised information must be submitted in writing and certified by the Responsible Official, and if necessary, by a Professional Engineer licensed in Louisiana. *Please Note:* New or additional equipment, processes or operating conditions not addressed in the original permit application will be addressed on a case-by-case basis. The Department reserves the right to address such changes in a separate permit action.

DEQ Response – ***DO NOT COMPLETE THIS SECTION.*** This section will be completed by Air Permits Division of DEQ, included in the proposed permit package and made available for public review during any required public comment period.

- Additional rows may be added as necessary.
- Completed Form shall be emailed to the Permit writer in MS Word compatible format within the deadline specified in the email notification.

Permit Reference	Remarks	Air Permits Division Response (for official use only)
PSD Permit PSD-LA-677(M-1)		
Page 4	ID/Description: 01-01 – Coal Railcar Unloading Building (EQT058) Remove language "used individually or in conjunction with a baghouse at 95% control efficiency."	The requested changes in this comment have been incorporated on page 4 of PSD-LA-677(M-1) for 01-01 – Coal Railcar Unloading Building (EQT058) as requested.
Page 6 – 17-01 Unit 4 Ash Silo	In the second sentence, Replace "pneumatically loaded into sealed trucks" with "loaded into sealed trucks or covered trucks (wetted)"	The requested changes in this comment have been incorporated on page 6 of PSD-LA-677(M-1) for 17-01 Unit 4 Ash Silo (EQT023) as requested.

Page 16	ID/Description: 01-01 – Coal Railcar Unloading Building (EQT058) Line 9 Under the sentence beginning "Industry experience has determined that a dry fogging or equivalent...," remove the language "used individually or in conjunction with a baghouse" from the sentence.	The requested changes in this comment have been incorporated on page 16 of PSD-LA-677(M-1) for 01-01 – Coal Railcar Unloading Building (EQT058) as requested.
Page 22 Second Paragraph	Under 11-06-Limestone day silos (EQT072), BC35 should be changed to BC36.	The requested changes in this comment have been incorporated on page 22 of PSD-LA-677(M-1) for 11-06-Limestone Day Silos (EQT072) as requested.
Page 43 "Maximum Allowable Emission Rates" table	ID/Description: 01-01 Coal Railcar Unloading Building (EQT058): PM_{10} 0.02 TPY should be corrected to 0.09 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of PSD-LA-677(M-1) for 01-01 – Coal Railcar Unloading Building (EQT058) as requested.
Page 43 "Maximum Allowable Emission Rates" table	ID/Description: Scenario 1: 15-01 and Scenario 2:15-01 – Only the cold SU rates are listed. Add the hot start-up emission rates under Scenario 2 Hot SU.	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of PSD-LA-677(M-1) for Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown (GRP009) as requested.
Page 44 "Maximum Allowable Emission Rates" table	ID/Description: 02-06 Luffing/Slewing Stacker Feed (EQT063): PM_{10} 1.16 TPY should be corrected to 2.23 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of PSD-LA-677(M-1) for 02-06 - Luffing/Slewing Stacker Feed (EQT063) as requested.
Page 44 "Maximum Allowable Emission Rates" table	ID/Description: 08-06 Limestone Transfer Tower (EQT069): PM_{10} 0.15 TPY should be corrected to 0.50 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of PSD-LA-677(M-1) for 08-06 - Limestone Transfer Tower (EQT069) as requested.
Page 44 "Maximum Allowable Emission Rates" table	ID/Description: 09-06- Limestone Stackout (EQT070): PM_{10} 0.15 TPY should be corrected to 0.50 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of PSD-LA-677(M-1) for 09-06 - Limestone Stackout (EQT070) as requested.

Emissions Rates for TAPS/HAP & Other Pollutants		
EQT 021 (15-01)	Page 9 of 34 – Under Polynuclear Aromatic Hydrocarbons – 0.014 should be corrected to 0.037	According to LAC 33:III.5112, Note 7, those compounds listed as Naphthalene are not to be included as Polynuclear Aromatic Hydrocarbons (PAHs). The emissions of Naphthalene, 0.023 TPY, were deducted from the total emissions of PAHs, 0.037, in accordance with the regulations, for this permit modification.
Statement of Basis		
	Under Material Handling, Coal Processing Operations In the sentence: The existing barge unloading system and…delete words "and will not be modified as a result" since elsewhere in the documents, chute and dust collection modifications are noted	The requested changes in this comment have been incorporated into the Statement of Basis in the description of the Material Handling, Coal Processing Operations as requested.
"Maximum Allowable Emission Rates" table	ID/Description: 01-01 Coal Railcar Unloading Building (EQT058): PM_{10}0.02 TPY should be corrected to PM_{10} 0.09 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of the Statement of Basis for 01-01 – Coal Railcar Unloading Building (EQT058) as requested.
"Maximum Allowable Emission Rates" table	ID/Description: Scenario 1: 15-01 and Scenario 2:15-01 – Only the cold SU rates are listed. Add the hot start-up emission rates under Scenario 2 Hot SU.	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of the Statement of Basis for Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown (GRP009) as requested.
"Maximum Allowable Emission Rates" table	ID/Description: 02-06 Luffing/Slewing Stacker Feed (EQT063): PM_{10} 1.16 TPY should be corrected to 2.23 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of the Statement of Basis for 02-06 - Luffing/Slewing Stacker Feed (EQT063) as requested.
"Maximum Allowable Emission Rates" table	ID/Description: 08-06 Limestone Transfer Tower (EQT069): PM_{10} 0.15 TPY should be corrected to 0.50 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of the Statement of Basis for 08-06 - Limestone Transfer Tower (EQT069) as requested.
"Maximum Allowable Emission Rates" table	ID/Description: 09-06- Limestone Stackout (EQT070): PM_{10} 0.15 TPY should be corrected to 0.50 TPY	The requested changes in this comment have been incorporated into the Maximum Allowable Emission Rates table of the Statement of Basis for 09-06 - Limestone Stackout (EQT070) as requested.

VI. Periodic Monitoring	Comment: We request to utilize annual throughput instead of operating time concerning periodic monitoring.	In the Periodic Monitoring section of the Statement of Basis, the annual throughput is to be monitored instead of the operating time for those sources requested by Big Cajun II in the following section titled Specific Conditions.
Specific Conditions		
EQT008 (02-01)	1) 2, 4: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT008, 02-01 – Transfer Tower T-20, as requested.
	2) 3, 5: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT008, 02-01 – Transfer Tower T-20, as requested.
EQT010 (04-01)	1) 13, 19: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT010, 04-01 – Transfer Tower T-22 / Crusher, as requested.
	2) 14, 20: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT010, 04-01 – Transfer Tower T-22 / Crusher, as requested.
	3) 15,16: Request removing conditions 15 and 16.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	4) 17. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT010, 04-01 – Transfer Tower T-22 / Crusher, as requested.
	5) 18: Request changing "Operating time <= 4950 hr/yr" to "Annual throughput <= 3,595,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT010, 04-01 – Transfer Tower T-22 / Crusher, as requested.

EQT011 (05-01)	1) 28, 29: Request removing conditions 28 and 29.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 30. Request changing "Report the operating time..." to "Report the annual throughput..."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT011, 05-01 – Emergency Unloading, as requested.
	3) 31: Request changing "Operating time <= 150 hr/yr" to "Annual throughput <= 375,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT011, 05-01 – Emergency Unloading, as requested.
EQT021 (15-01) Boiler 4 (2B4)	1) 45: SO2, NOX and CO maximum lb/hr emissions are incorrect. SO2 is 1516.7 lb/hr; NOX is 758.9 lb/hr and CO is 1772.8 lb/hr	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT021, 15-01 – Boiler No. 4(2B4), as requested.
	2) 51, 52: Combine conditions 51 and 52 to comply with either condition 51 or condition 52, consistent with 40CFR60.44Da.	Big Cajun II will comply with 40 CFR 60.44Da(i)(1)(i) for SO_2 using a 30-day rolling average in this Part 70 modification.
	3) 60, 61: These conditions are satisfied with an installation of certified CEMS.	In this Part 70 modification, supplemental text has been added to the citation which states that compliance met through the installation and operation of a CEMS for the pollutants.
	4) 71: PM_{10} CEMS requirement – In the Statement of Basis it allows PM_{10} CEMS as an alternative to COM according to 40 CFR 60.48Da(p).	In this Part 70 modification, Big Cajun II is required to meet the opacity standard in 40 CFR 60.42Da(b) using the monitoring procedures of 40 CFR 60.48Da(o). As an alternative to these requirements, Big Cajun II can follow the procedures in 40 CFR 60.48Da(p).
	5) 161: Scrubber liquid pH recordkeeping by recorder to document pH. (Totalizer is not meaningful.)	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT021, 15-01 – Boiler No. 4(2B4), as requested.
EQT023 (17-01) Unit 4 Fly Ash silo	1) 171,173: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT023, 17-01 – Unit 4 Ash Silo, as requested.

EQT023 (cont.)	2) 172, 174: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT023, 17-01 – Unit 4 Ash Silo, as requested.
EQT027 (2B1) Unit 1 boiler	1) 188: Demonstrate compliance as an alternative means with the facility-wide…	The requested change in this comment has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT027, 2B1 – Boiler No. 1, as requested.
	2) 190: Request removing condition No. 190.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT027, 2B1 – Boiler No. 1, as requested.
	3) 195: Request removing condition No. 195.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT027, 2B1 – Boiler No. 1, as requested.
	4) 203: Request removing condition No. 203. CO CEMS is already certified in October 2005.	Because this citation requires Big Cajun II to monitor for CO emissions using a Continuous Emission Monitoring System (CEMS), it can not be removed from the Part 70 modification. The requirement to certify the CO CEMS according to Performance Specification 4 of 40 CFR 60 Appendix B no later than November 1, 2005, has been moved to the Statement of Basis.
	5) 213: Request removing condition No. 213. Required Performance tests have been conducted.	Supplemental text has been added to the Statement of Basis which states that the permittee has completed the following regulations regarding initial compliance certification and/or testing prior to the date cited in the regulation.
EQT028 (2B2) Unit 2 boiler	1) 226: Demonstrate compliance as an alternative means with the facility-wide…	The requested change in this comment has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT028, 2B2 – Boiler No. 2, as requested.
	2) 228: Request removing condition No. 228.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT028, 2B2 – Boiler No. 2, as requested.

EQT028 (cont.)	3) 233: Request removing condition No. 233.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT028, 2B2 – Boiler No. 2, as requested.
	4) 241: Request removing condition No. 241. CO CEMS is already certified in October 2005.	Because this citation requires Big Cajun II to monitor for CO emissions using a CEMS, it can not be removed from the Part 70 modification. The requirement to certify the CO CEMS according to Performance Specification 4 of 40 CFR 60 Appendix B no later than November 1, 2005, has been moved to the Statement of Basis.
	5) 251: Request removing condition No. 251. Required Performance tests have been conducted.	Supplemental text has been added to the Statement of Basis which states that the permittee has completed the following regulations regarding initial compliance certification and/or testing prior to the date cited in the regulation.
EQT029 (2B3) Unit 3 boiler	1) 264: Demonstrate compliance as an alternative means with the facility-wide…	The requested change in this comment has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT029, 2B3 – Boiler No. 3, as requested.
	2) 266: Request removing condition No. 266.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT029, 2B3 – Boiler No. 3, as requested.
	3) 271: Request removing condition No. 271.	The requested change in this comment to remove the condition has been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT029, 2B3 – Boiler No. 3, as requested.
	4) 279: Request removing condition No. 279. CO CEMS is already certified in October 2004.	Because this citation requires Big Cajun II to monitor for CO emissions using a CEMS, it can not be removed from the Part 70 modification. The requirement to certify the CO CEMS according to Performance Specification 4 of 40 CFR 60 Appendix B no later than November 1, 2005, has been moved to the Statement of Basis.
	5) 289: Request removing condition No. 289. Required Performance tests have been conducted.	Supplemental text has been added to the Statement of Basis which states that the permittee has completed the following regulations regarding initial compliance certification and/or testing prior to the date cited in the regulation.

EQT030 (BR1,2)	1) 293, 295: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT030, BR 1,2 – Unit 1 & Unit 2 Bunker Room, as requested.
	2) 294, 296: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT030, BR 1,2 – Unit 1 & Unit 2 Bunker Room, as requested.
EQT033 (EBR3)	1) 303, 305: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT033, EBR3 – Unit 3 East Bunker Room, as requested.
	2) 304, 306: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT033, EBR3 – Unit 3 East Bunker Room, as requested.
EQT034 (PC1)	1) General – Baghouse installation at Barge Unloading is not binding if Unit 4 is not constructed.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT034, PC1 – Barge Unloading, as requested.
	2) 313, 315: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections, if constructed.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT034, PC1 – Barge Unloading, as requested.
EQT035 (S 3,4)	1) 324, 326: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT035, S 3,4 – Lime Silo Operation, as requested.
	2) 325, 327: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT035, S 3,4 – Lime Silo Operation, as requested.

EQT036 (T1)	1) 332: Spoon Chutes installation at existing transfer tower is not binding if Unit 4 is not constructed.	Supplemental text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT036, T1 – Transfer Tower T1, as requested.
EQT037 (T1A)	1) 338: Spoon Chutes installation at existing transfer tower is not binding if Unit 4 is not constructed.	Supplemental text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT037, T1A – Barge Unloading Transfer, as requested.
EQT038 (T2)	1) 344: Spoon Chutes installation at existing transfer tower is not binding if Unit 4 is not constructed.	Supplemental text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT038, T2 – Transfer Tower T2, as requested.
EQT039 (T3)	1) 350: Spoon Chutes installation at existing transfer tower is not binding if Unit 4 is not constructed.	Supplemental text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT039, T3 – Transfer Tower T3, as requested.
EQT040 (T4) Crusher	1) 356: Use of a partial enclosure and chemical spray, instead of full enclosure and chemical spray.	The modified text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT040, T4 – Transfer Tower T4/Crusher, as requested.
EQT041 (T8)	1) 361, 363: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT041, T8 – Transfer Tower T8, as requested.
	2) 367: Use of a partial enclosure and a baghouse, instead of full enclosure and a baghouse. Transfer point is calculated based on partial enclosure in the permit application.	The modified text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the source EQT041, T8 – Transfer Tower T8, as requested.
EQT043 (TNK12) Gasoline tank	1) General: Insert requirements of Chapter 51 here; or alternatively, modify Title V permit to remove reference of Chapter 51.	The Specific Conditions of the Part 70 permit modification will be amended for EQT043, TNK12 – Gasoline Tank, with the following for LAC 33:III.5109.A: use of a submerged fill pipe on the tank is determined as MACT.

EQT049 (WBR3)	1) 375, 377: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT049, WBR3 – Unit 3 West Bunker Room, as requested.
	2) 376, 378: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT049, WBR3 – Unit 3 West Bunker Room, as requested.
EQT050 (EG-1)	1) 390: Change Operating Time to <= 552 hr/yr. New EIQ sheets are being submitted.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT050, EG-1 – Emergency Generator # 1, as requested.
EQT051 (EG-2)	1) 397: Change Operating Time to <= 552 hr/yr. New EIQ sheets are being submitted.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT051, EG-2 – Emergency Generator # 2, requested.
EQT052 (EF-1)	1) 404: Change Operating Time to <= 552 hr/yr. New EIQ sheets are being submitted.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT052, EF-1 – Emergency Firewater Pump # 1, as requested.
EQT053 (EF-2)	1) 411: Change Operating Time to <= 552 hr/yr. New EIQ sheets are being submitted.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT053, EF-2 – Emergency Firewater Pump # 2, as requested.
EQT058 (01-01)	1) General: Insert requirements of Chapter 51 here; or alternatively, modify Title V permit to remove reference of Chapter 51.	In the Specific Conditions section of the Part 70 permit modification for EQT058, 01-01 –Coal Railcar Unloading Building, includes the following text for LAC 33:III.5109.A: apply a dry fogging or equivalent dust suppression system is determined as MACT.

EQT060 (06-01) T-23	1) 419, 421: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT060, 06-01 – Transfer Tower T-23, as requested.
	2) 420,426: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT060, 06-01 – Transfer Tower T-23, as requested.
	3) 422, 423: Request removing conditions 422 and 423.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	4) 424. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT060, 06-01 – Transfer Tower T-23, as requested.
	5) 425: Request changing "Operating time <= 2400 hr/yr" to "Annual throughput <= 3,595,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT060, 06-01 – Transfer Tower T-23, as requested.
EQT062 (01-06)	1) 441, 442: Request removing conditions 441 and 442.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 443. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT062, 01-06 – Stamler Reclaim System, as requested.
	3) 444: Request changing "Operating time <= 1000 hr/yr" to "Annual throughput <= 2,400,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT062, 01-06 – Stamler Reclaim System, as requested.

EQT064 (03-06)	1) 457, 458: Request removing conditions 457 and 458.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 459. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT064, 03-06 – Luffing /Slewing Stacker, as requested.
	3) 460: Request changing "Operating time <= 1540 hr/yr" to "Annual throughput <= 3,595,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT064, 03-06 – Luffing /Slewing Stacker, as requested.
EQT066 (05-06)	1) 472, 473: Request removing conditions 472 and 473.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 474. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT066, 05-06 – Limestone Railcar Unloading, as requested.
	3) 475: Request changing "Operating time <= 670 hr/yr" to "Annual throughput <= 500,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT066, 05-06 – Limestone Railcar Unloading, as requested.
EQT067 (06-06)	1) 494, 495: Request removing conditions 494 and 495.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 496. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT067, 06-06 – Emergency Limestone Truck Unloading, as requested.
	3) 497: Request changing "Operating time <= 300 hr/yr" to "Annual throughput <= 60,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT067, 06-06 – Emergency Limestone Truck Unloading, as requested.

EQT068 (07-06)	1) 517, 518: Request removing conditions 517 and 518.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 519. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT068, 07-06 – Emergency Limestone Reclaim, as requested.
	3) 520: Request changing "Operating time <= 300 hr/yr" to "Annual throughput <= 54,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT068, 07-06 – Emergency Limestone Reclaim, as requested.
EQT071 (10-06)	1) 575, 576: Request removing conditions 575 and 576.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 577. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT071, 10-06 – Limestone Reclaim, as requested.
	3) 578: Request changing "Operating time <= 650 hr/yr" to "Operating time <= 8,760 hr/yr" and "no throughput limit."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT071, 10-06 – Limestone Reclaim, as requested.
EQT072 (11-06)	1) 596, 598, 599: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT072, 11-06 – Limestone Day Silos, as requested.
EQT077 (16-06)	1) 692, 693: Request removing conditions 692 and 693.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.

EQT077 (cont.)	2) 694. Request changing "Report the operating time…" to "Report the annual throughput…"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT077, 16-06 – Gypsum Truck Loading, as requested.
	3) 695: Request changing "Operating time <= 3000 hr/yr" to "Annual throughput <= 480,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT077, 16-06 – Gypsum Truck Loading, as requested.
EQT078 (17-06)	1) 714, 716, 717: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT078, 17-06 – Activated Carbon Silo Bin Vent, as requested.
	2) 715, 718: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT078, 17-06 – Activated Carbon Silo Bin Vent, as requested.
EQT079 (18-06)	1) 723, 725, 726: Filter vents: Asking for two different things (weekly and daily inspection). Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for EQT079, 18-06 – Sorbent Silo Bin Vent, as requested.
FUG006 (S 1,2)	1) 755, 757: Filter vents: Request only weekly inspections	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for FUG006, S 1,2 – Fly Ash Handling Emissions, as requested.
	2) 756, 758: Baghouses –Remove "upon each occurrence of process unit shutdown," and replace with "on a semi-annual basis."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for FUG006, S 1,2 – Fly Ash Handling Emissions, as requested.
FUG008 (FUG 10)	Typo – "Gypsum" instead of "Gysum."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for FUG008, FUG10 – Gypsum Pile & Loading Fugitive Emissions, as requested.

FUG011 (FUG 7)	1) 804, 805: Request removing conditions 804 and 805.	These conditions remain in the permit because they are a necessary piece of the four-part limitation, monitoring, recordkeeping, and reporting citations when the permittee is required to track the annual throughput.
	2) 806. Request changing "Report the operating time..." to "Report the annual throughput..."	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for FUG011, FUG 7 – Limestone Conveyors, as requested.
	3) 807: Request changing "Operating time <= 1516 hr/yr" to "Annual total system throughput <= 500,000 tons/yr"	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for FUG011, FUG 7 – Limestone Conveyors, as requested.
GRP005	1) 872: Submit ammonia report if unit 4 is constructed.	Supplemental text has been added to the Part 70 permit modification, PSD permit modification, and Statement of Basis, for the ammonia report as requested.
	2) 873, 874, 875: These have been completed and can be removed.	Supplemental text has been added to the Statement of Basis which states that the permittee has completed the following regulations, LAC 33:III.2201.J.1 & 2, regarding initial compliance certification and/or testing prior to the date cited in the regulation.
	3) 897 and 927 are the same chemical, one of them should be deleted.	The limit on Methylene Chloride, condition 897, has been removed from the Specific Requirements section of the Part 70 modification for GRP005, Plant Wide, as requested.
GRP008	1) 988: It lists 12 Cold SU/SD per year. Request an exemption from this requirement for the first twelve months of Unit 4 operation.	Supplemental text has been added to the requirement for GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown which will require compliance to begin upon the Commercial Operating Date (COD) or the end of the shake down period.
GRP009	1) 993: It lists 12 Hot SU/SD per year. Request an exemption from this requirement for the first twelve months of Unit 4 operation.	Supplemental text has been added to the requirement for GRP009, Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown which will require compliance to begin upon the Commercial Operating Date (COD) or the end of the shake down period.

GRP009 (cont.)	2) 994: These emission rates are cold SU numbers. They should be changed to hot SU numbers. The correct hot SU numbers are in Title V.	The requested changes in this comment have been incorporated into the Specific Conditions section of the Part 70 permit modification for GRP009, Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown, as requested.
GRP010	GRP010 is an addition. Add item 995 to reflect that GRP010 is equivalent to EQT021 (item 45)	In this permit modification, GRP010, Scenario 3: 15-01 NOP – Boiler No. 4 Normal Operations, represents a scenario for EQT021, 15-01 – Boiler No. 4(2B4), which describes normal operations over an entire year. These emission rates do not include start-up/shut-down operations and reflect emission rates provided on the Emission Inventory Questionnaire (EIQ) sheet for 15-01 – Boiler No. 4(2B4). A description of the relationship between EQT021 and GRP010 is provided in the Emission Rates Notes of the Emission Rates For Criteria Pollutants.
Emission Rates For Criteria Pollutants		
Page 1 of 6	EQT021: Values for average and maximum for PM10, SO2, NOX, CO and VOC (in lb/hr) are not included.	The average and maximum rates for EQT021, 15-01 – Boiler No. 4(2B4), are located in one of the operating scenarios for the boiler: GRP008, Scenario 1: 15-01 Cold SU – Boiler No. 4 Cold Start/Shutdown, GRP009, Scenario 2: 15-01 Hot SU – Boiler No. 4 Hot Start/Shutdown, or GRP010, Scenario 3: 15-01 NOP – Boiler No. 4 Normal Operations. A description of the relationship between EQT021 and the scenarios is provided in both the Emission Rates Notes of the Emission Rates For Criteria Pollutants and the Part 70 permit document.